



# COAL AGE



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No. 13

## Improved Outlook in Coal Mining

**A**NTHRACITE shipments for the first eight months of the current year are 2,000,000 tons less than last year. It will require active fall mining to overcome this deficiency. Consumers have hesitated more than usual and customary surpluses have not been accumulated.

Bituminous shippers are very conservative over future commitments. The export trade is most certain to prove a potent factor in the domestic market. European demands are increasing. Vessels bunkering are taking double tonnages for the round trip.

Steel mills in the Pittsburgh district are producing a greater tonnage than ever before in their history, and coal and coke consumption in this line is at a record rate. Coal prices have stiffened generally, and further important advances will result in case of a car or labor shortage, both of which seem imminent.

Large steam consumers throughout the country are disposed to cover their fuel requirements against a possible price increase. Important railroads are accumulating reserve supplies. The first general cold snap will precipitate a vigorous buying movement.

Tonnage statements of the big coal carriers are also showing a substantial increase. For

**O**PTIMISM prevails in the coal and coke industries. The feeling of pessimism so prevalent among mining men a few months ago has largely disappeared. This change for the better is based on an actual improvement in the nation's fuel situation and is widespread. If present prospects are realized, the coming winter will show greater prosperity to coal men than they have experienced in years.

example, the Norfolk & Western coal shipments increased from 2,200,000 tons in April to 3,000,000 tons in August. The Chesapeake & Ohio is showing a similar well-sustained improvement, while the Baltimore & Ohio is moving coal at the rate of nearly half a million tons per month more than during last year.

Even in Ohio the coal industry has taken on a new lease of life. The average percentage of operations for all Ohio districts has

jumped from 34 per cent. to 47 per cent. full-rated capacity.

About two weeks ago "Coal Age" asked 1000 prominent coal-mine owners and managers to forecast business in their fields this fall and winter. The replies are from every coal state in the Union and are almost universally favorable. At this writing 102 forecasts have been received, of which number 89 companies anticipate good business this fall and winter. When it is remembered that coal men generally are not a hopeful lot, the overwhelmingly optimistic opinions are significant.

Subsequent issues of "Coal Age" will give a detailed analysis of the American coal situation and prospects as viewed by the important men in the industry itself.

## Ideas and Suggestions

### Putting the Old Men Out

In our present-day industrial life efficiency is the watchword everywhere. To produce this a process that we might call "put the old men out and the young ones in" is often ruthlessly employed.

A famous scientist recently declared that about 60 years is the limit of a man's usefulness. He established this arbitrary line as a basis to determine the fit from the unfit, but we fear his deductions were drawn from too little experimentation. Probably using 60 years as a limit was intended to incite and stimulate the contented middle-aged man to work for a vigorous old age.

In the coal-mining industry we have today and have had scores of recognized men who do things and see that things are done who are well past the 60-year mark. Because of their lessened physical resources let us not forget their vigorous mental powers, their tempered sense of duty and their precious practical knowledge gained in the school of life.

The older men have made our prosperous institutions what they are and the younger ones should not be too eager to depose them, as their time to prove their worth will also come. Let every employer judge his employee solely by efficiency, not age.

### Human Equation in Mining

BY FORNEY L. PARKER

In transporting coal from the solid to the breaker it is human power rather than mechanical power that does the essential work, and yet it often happens that more consideration is given to the mechanical machine than to the human machine. We strive to keep our mechanical devices efficient by painstaking tests and records, while man is allowed to choose his own groove and follow it.

We keep cost sheets and records of coal produced per man and per period of time, but we have only a general idea of the hundred-and-one details that occur in getting the coal from the solid to the mine car. For instance, a breastman working in a pitching and gassy seam will often carry a poor brattice because he thinks it will take too much time to make it air-tight, or because the buddy who taught him mining did it that way. The result is that as the face progresses the air short-circuits through the leaky brattice and his place will be blackened with gas, which not only means a loss of time and money to himself but also a loss of perfectly good coal to the company. If the miner had received the proper instruction or his place had received adequate inspection while he was at work, this would not have occurred.

It is well for the superintendent to study the attitudes of his employees. Attitude is rather hard to define. By a bad attitude we mean laziness, shiftlessness and lack

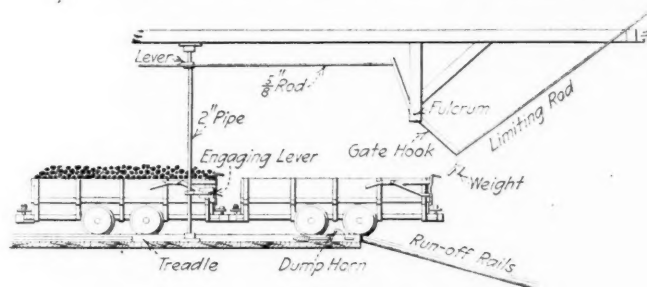
of interest, while good attitude we designate as industry, application and enthusiasm. These bad attitudes are developed by circumstances and by following the line of least resistance, and unless a strong influence is exerted to change them we cannot have the efficient employee.

To give the employee sufficient motive to accomplish his task in a thoroughly efficient manner, wage probably has more influence than anything else. It is hope of reward rather than fear of penalty that brings forth the best efforts in the miner. While increase of wages, which is probably best accomplished by the bonus system, is the most effective, a comfortable home, with congenial surroundings and pleasant diversions, will furnish good incentives for efficient work.

When an individual is brought to a realization of the interest that is being taken in his welfare he will give his full measure of devotion to his work, and not before.

### Automatic End-Gate Lifter

The accompanying sketch illustrates a simple method of automatically releasing the gate of a mine car after it has been dumped and is in the act of being replaced by a loaded car on a Phillips crossover dump. The advantage



SHOWING DETAILS OF END-GATE LIFTER

of the method shown over that of the overhead lever which drags over the coal topping, similar to that submitted by A. W. Hesse in *Coal Age*, No. 9, Vol. 8, is that no coal is scraped off in front of the dump when used at mines where the coal is built up above the top board of the car.

The arrangement here depicted is now being used at Mine No. 2 of the Wasson Coal Co. in Saline County, Illinois, and operates in an entirely satisfactory manner.

The exact method of installing this release may be varied to suit the material at hand. In the installation referred to the gate hook is of a common type and is made of 2x1½-in. iron. This is suspended so that its normal position is not quite vertical when ready to engage the hook on the mine-car gate and is fitted with a small weight to assist its quick return to engaging position, being limited in this movement to the proper position by the limiting rod, which is ½ in. in diameter, bent into a hook which passes over a timber. The vertical axle, to which are connected the arm which the cars strike and the lever which swings the hook back by its pull on the

5-in. connecting-rod, is a 2-in. pipe set in end plates. Both levers are 2x1½-in. iron, bent to fit the pipe and fastened to it by through bolting.

The position of the vertical axle must be such that the "engaging" lever is struck by the front end of the car as soon as the treadle rail is depressed and the horns spread to release the empty car. The length of the levers will depend on local conditions. Although it might appear that the connecting-rod pulling at an angle would give trouble, as a matter of fact in the installation mentioned the operation is smooth and quick and can be worked by hand.

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## Coal Should Be Mined but Once

BY N. G. NEAR

After coal is once dug out of the ground by the laborious process of mining, it should never be allowed to touch the ground again; at least it should not be handled by hand again, for hand labor is inefficient.

From the minute the coal is thrown into the mine car it should be in a state that permits of mechanical handling. If coal is dumped onto the ground at any time and must be shoveled by hand, the mining process is virtually repeated, and it is that process which makes coal most expensive.

No matter what your business—mine operator, middleman or retail coal dealer—bear this principle in mind: Coal should be mined only once.

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## Time Wasters

BY PENNSYLVANIA ENGINEER

Almost every mining town contains a certain proportion of inhabitants who are time wasters. They are generally in evidence close to the company store or at some other central point where they are sure to find others of their kind.

The time wasters are a purposeless crew. They are generally devoid of any desire to get ahead, and make no effort in that direction, even though their talk often indicates that they are highly dissatisfied with their condition. However, instead of putting their time to good use, they find it more to their liking to give vent to their thoughts and opinions in the presence of others like themselves who feel that they have nothing better to do than to listen to them.

### SELF-PRAISE THE COMMON VOCATION

The talk of the time wasters covers a wide variety of subjects. A topic of prime interest concerns the operation of the mines; the inevitable mistakes of the superintendent or the mine foreman are subject to the most minute examination and criticism. Any one of the time wasters could tell how to avoid these mistakes and how to operate the mines more economically and efficiently. Another subject of great importance to each speaker is his own special ability in some particular branch of mine work. In his enthusiasm this fellow is quite apt to spread his praise of himself over so many different kinds of work that even his easygoing hearers lose patience. Moreover, his story is not told once but on every possible occasion when he can get away with it. In fact, the whole tendency of the time wasters is to

lose their sense of proportion, which results in their greatly exaggerating things of slight importance.

Serious discussion makes for strengthened brain power, and it likewise awakens clear thinking. The difficulty is, however, that the environs of the store corner and the usual dispositions of the time wasters do not contribute to helpful discussion. A combination of narrowness, unenlightened opinion and a certain amount of profanity does not constitute serious talk, however forceful the speaker. An open-minded, thoughtful discussion of some matter of vital concern is not what is wanted by the time wasters; it is more spicy, and productive of further comment, to hear someone break in with remarks of a prejudiced nature.

### AMBITION IS RIDICULED

The meetings of the time wasters are not without their amusements. Many funny events occur every day which furnish subjects for conversation. The fellow who occasionally makes a foolish mistake comes in for his share of the laughter. The time wasters also derive much amusement from the comments concerning the more ambitious element of the town. If there happens to be a night school in session, it is real sport, in their opinion, to pass remarks about the "school boys" as the latter go by on their way to the classroom. The best feature of this "fun" is the fact that it is continuous. As the "school boys" improve their opportunities and make their way forward and upward their places are filled in the school by other ambitious lads, and they in turn become the object of comments by the same old crowd of time wasters who remain stationary at the corner store.

The disadvantage that comes to the time wasters is of course mainly in the opportunities lost during the periods that could have been devoted to some more helpful occupation. The hours that could have been used making improvements about the home, in reading or in study are gone. That is unfortunate; but there is another feature that is as bad, if not worse. The time wasters by their continued presence in their favorite haunts encourage their younger hangers-on to become confirmed in the same state of inefficiency. These lads look forward to the time when their opinions will be listened to and they may claim their regular places with the others.

Public opinion cannot hold the time wasters in high regard; nor can the officials of corporations look to them when choosing men for promotion. It is a well-founded assumption that any man who wastes his time in listless gossip at the corner store is not fitting himself for advancement. And in the present day, when night schools are more widely established, when excellent textbooks may be obtained and when the technical press supplies papers suited to almost every industry, the time waster is looked down upon more than ever.

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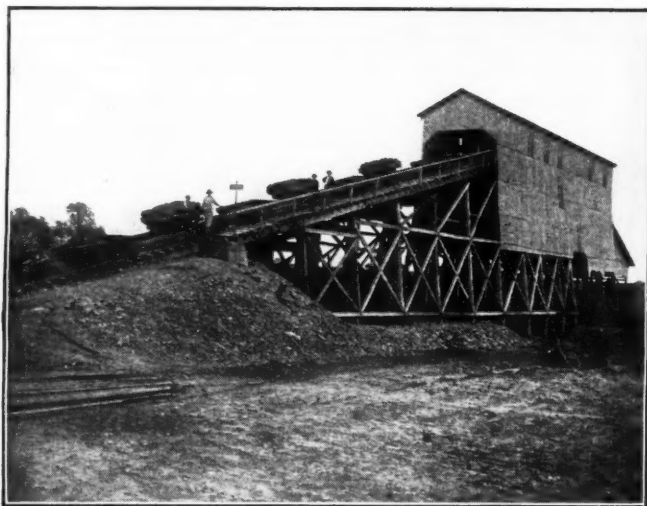
**Miner's Helper as Operator's Employee**—Helpers employed by miners with the operator's permission are entitled to the same degree of consideration from the operator as to their safety as is due the miners, where it appears that the operator keeps account of coal loaded by the helpers and pays them, deducting the amounts due them from the amounts due the miners, and that the helpers are subject to the control of the operator the same as the miners. (Kentucky Court of Appeals, *Small vs. Borderland Coal Co.*, 170 Southwestern Reporter 8.)



## A Slope Mine in Illinois

*SYNOPSIS—Contrary to the usual custom in Illinois the coal is reacked at this operation by means of a slope. Loaded and empty car-hauls driven by an electric motor take the place of hoisting engines and cages, with a considerable saving as well as greater safety and convenience.*

The Wasson Coal Co., of Harrisburg, Ill., is one of the few coal companies in the Middle West that has been prospering and opening up new fields during the last year. The stockholders have received substantial dividend checks regularly; large sums have been spent for improvements in the old equipment, and a new mine has been developed and equipped during this time. All this goes to show what it is possible to accomplish by



THE CAR HAUL IN OPERATION

good management and an efficient organization such as this company has developed.

In the equipment of the new mine, which will have an output of about 2,000 tons per day, the management has indicated its progressive disposition by a radical departure from the established custom of sinking vertical shafts. An incline was driven to the coal and a car-haul installed to bring the pit cars from the mine to the tipple. So far as is known this is the only installation of its kind in the Middle West. There are car-hauls, however, which are entirely above ground or in connection with drift mines.

This plant is situated on the open prairie, a condition typical of most Illinois mines. The management was fortunate in locating a spot where the coal "crops out" to within about 30 ft. of the ground surface and where it has a good slate roof. The coal seam is about  $4\frac{1}{2}$  ft. thick and although on a gradual slope, the haulage, handled by locomotives, is not hampered.

The accompanying view of the No. 2 mine shows the car-haul in operation. This haul is also of interest, in that it is one of the largest in operation in the whole coal-mining industry. It is constructed of two high-grade steel chains, one for the loaded cars and one for the empties, operated by a 75-hp. motor. The motor is controlled by the men in the weighhouse, who start and stop the haul when under full load, as required to accommodate the men that load out the railway cars.

The empty haul is driven by chain and sprockets from a countershaft of the loaded haul.

The chain on the loaded haul operates at a speed of 60 ft. per min. It is on an incline of 14 deg. 30 min., has a working stress of 25,000 lb., and is equipped with four-wheel gravity tilting spurs. This chain is 18 in. pitch, every second link being composed of drop-forged steel. The alternate links consist of two "30 to 40 carbon" steel bars. The pins are of  $1\frac{3}{4}$  in. diameter.

The chain was designed for the working load given, on a conservative basis, and large factors of safety were employed. Safety dogs have been provided on the supporting structure of the loaded haul. If a car should get away and start down the incline, it could not go more than a distance equal to a little over its own length before engaging one of these stops. The length of the haul is 365 ft. from center to center of head and foot shafts.

The chain on the empty or down-haul operates at a speed of about 85 ft. per min. and is also equipped with four-wheeled gravity tilting spurs. The distance center to center of head and foot shaft is 325 ft. The chain is made of high-carbon steel bars.

A caging device is provided at the foot of the loaded haul, thus making it possible for a man to deliver cars to the haul, one at a time, at proper intervals to engage every spur on the chain. The track in the entry is on a slight grade to this caging device, while the track leading from the empty haul is on a slight inclination back into the entry. These grades favor the haulage locomotives materially. At the head of the hauls, in the tipple, a crossover dump and kick-back are provided.

The points that the operators claim in favor of this equipment are:

1. First cost is no greater than that of hoisting engines, cages, etc., necessary for a vertical shaft.
2. The services of a hoisting engineer are dispensed with.
3. The miners walk into the mine through a passage alongside the haul and are not subject to dangers of falling cages, etc.
4. The men are free to enter and leave the mine at will, without waiting for a hoist.

This haul was designed and furnished by the Jeffrey Manufacturing Co., of Columbus, Ohio, which makes a specialty of coal-handling equipment.

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## Coal Production of Kansas

The production of coal in Kansas in 1914 amounted to 6,824,068 short tons, according to the Geological Survey, with a value at the mines of \$11,181,687. This is a decrease of 5 per cent. in quantity and 7 per cent. in value from the output of 1913. In other respects, however, the year is reported to have been satisfactory to the coal men, no serious strikes or flooding of pits having interfered with coal mining in the state during the year.

Some improvement in the dangerous practice of shooting from the solid is shown for Kansas, the coal mined by this method in 1914 being 77.3 per cent. of the total output as compared with 80.5 per cent. in 1913.

The number of men employed in the coal mines of Kansas in 1914 was 12,413, and they worked an average of 191 days against 12,479 men for an average of 197 days in 1913. The average production per man in 1914 was 550 tons and 2.88 tons for each working day.



# Large Stripping Operation

By FRANK H. KNEELAND

*SYNOPSIS—At Ebervale, Penn., a bed of coal which was abandoned many years ago—being supposedly worked out—is being in large measure reclaimed by stripping. Unlike most operations of this kind, this work is being done on a salvage basis. Under present conditions by using modern methods as much as 8 cu.yd. of earth may be moved in order to secure 1 cu.yd. of anthracite coal.*

The surface mining or quarrying of coal is probably the oldest form of coal production. Like most other forms of mining, however, it has undergone considerable development from the primitive methods at first employed in this operation.

The usual conception of a strip pit is that the coal occurs under shallow cover, which may easily be removed by means of horses and carts, wheeled or scoop scrapers, or even by wheelbarrows. Of late years, however, the

is approximately 30 ft. thick. Beneath it lies the Wharton vein, which is about 4 ft. thick and of slightly inferior quality. The Wharton is separated from the Mammoth bed at Ebervale by a stratum of rock about 12 in. thick. East and west of this point, however, this rock increases up to between 6 and 8 ft. in thickness.

As has been said, the coal at Ebervale had been worked out and abandoned many years ago. The headings and breasts of the original mine were driven in the Mammoth vein and on account of the weak roof the miners were compelled to leave the top benches of this measure. Consequently the breasts driven were 30 ft. wide and 18 ft. high. Furthermore, as the breasts approached the outcrop the cover became too thin and broken to be readily supported, and they were consequently abandoned some distance from the actual outcrop. The Wharton vein was untouched in the original workings.

It will thus be seen that as a matter of fact the basin at Ebervale contained a considerable amount of perfectly

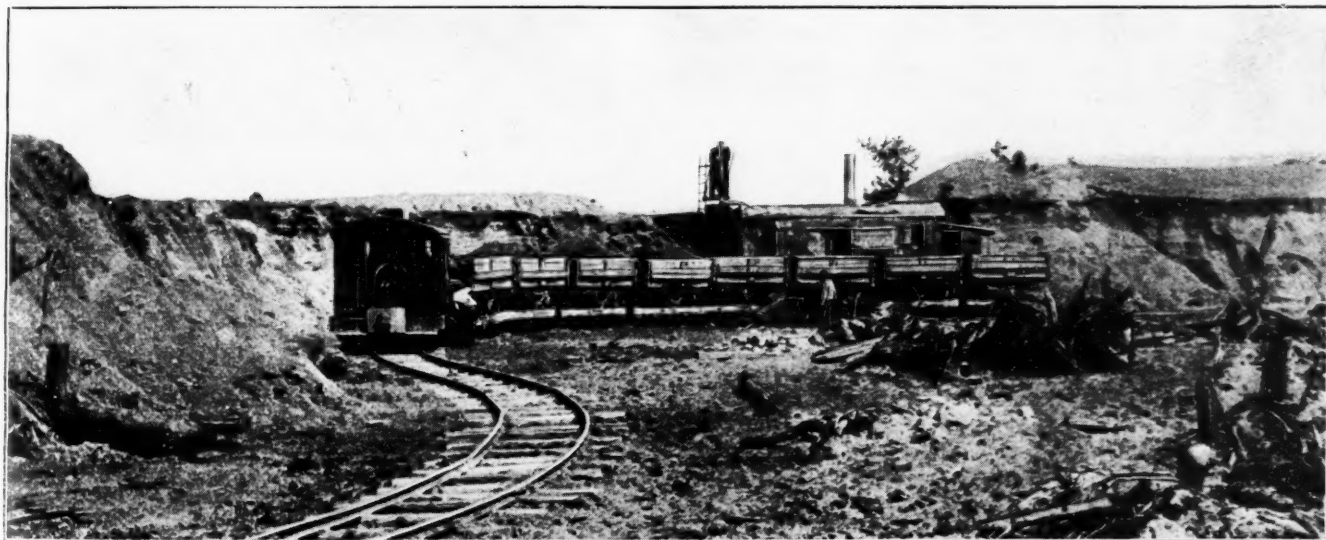


FIG. 1. A STEAM SHOVEL REMOVING CULM FROM A LARGE BANK AT EBERVALE

steam shovel has been used with great success in stripping operations and has rendered possible the extraction of coal which could not be secured by any other means. Furthermore, some modern strip pits could hardly be termed shallow.

At Ebervale, near Hazleton, Penn., the Central Pennsylvania Quarry, Stripping and Construction Co. is engaged on what is called its No. 5 coal job for the G. B. Markle Co. This is one of the most extensive and most costly stripping operations in the United States, as well as being the only one worked on a salvage basis.

In the vicinity of Hazleton the Mammoth or Big vein of anthracite lies in a basin in the bottom of a valley, upon either side of which it outcrops. This coal measure was one of the first, as well as one of the richest, to be worked in the anthracite region, and the particular property in question was worked out and abandoned many years ago. At this point the Mammoth coal bed

good coal at the time it was abandoned. In the Mammoth vein this consisted of the top and bottom coal of breasts and entries, all pillars, and a strip of virgin coal around the outcrop that could not be safely mined by underground methods. It also included the entire contents of the Wharton coal bed.

After being abandoned, the old workings in many instances caved in and became filled with broken rock, clay and silt. The ground above the old mine, except that which was covered by a culm bank, supported a considerable amount of second-growth timber, but was full of cave holes, marking where rooms or breasts had been driven. As it was believed that the available mineral wealth of this property had been exhausted, the land above the old workings lay utterly idle, as it was neither safe for building purposes nor fit for cultivation.

The owner of this land found himself in a predicament. His property was taxable but nonproductive, nor except



FIG. 2. A STEAM SHOVEL AT WORK IN STRIPPING

for the culm bank previously mentioned was there reason to believe that it might ever become otherwise, or at least not within the span of ordinary human life.

Then about four or five years ago David Benjamin and Charles E. Butler, operating heads of the Central Pennsylvania Quarry, Stripping and Construction Co., men of wide experience in the stripping of anthracite coal, got an idea and simultaneously an inspiration. After carefully going over the ground and learning all the facts so far as possible, they came to the conclusion that with prices and market conditions then prevailing the coal still remaining in this abandoned property could in large part be successfully reclaimed on a salvage basis. They accordingly entered into a contract with the G. B. Markle Co., which held a lease to the property, whereby they were to strip and deliver the product to the nearest Markle breaker, receiving therefor a certain price per ton.

Stripping was started July 11, 1913, and the first coal was sent to the breaker on May 9, 1914. Thus almost a year of steady outlay, amounting to about \$200,000, and the moving of 1,000,000 cu.yd. of material were required before one cent was realized. At the present writing the center section of this stripping is 1500 ft. long, 800 ft. wide and has a maximum depth of approximately 160 ft.

The culm bank previously referred to is now being removed by steam shovel and prepared for market. This culm consists mostly of small sizes of coal, and only a small percentage of the entire bank is as large as chestnut. The ground upon which it is located will eventually be stripped, as well as a large portion of the remainder of the property.

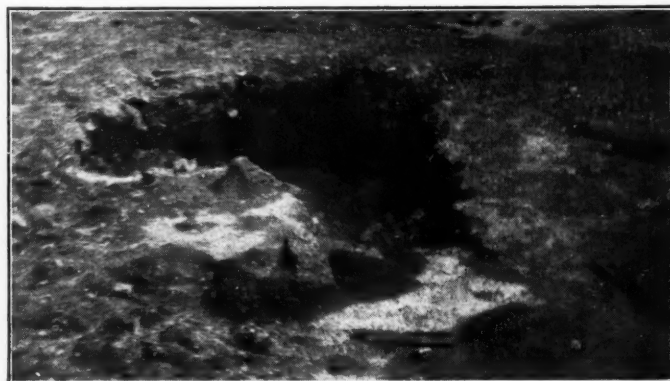


FIG. 3. RESULT OF CAVING UNDER THE SIDE JACK OF A STEAM SHOVEL

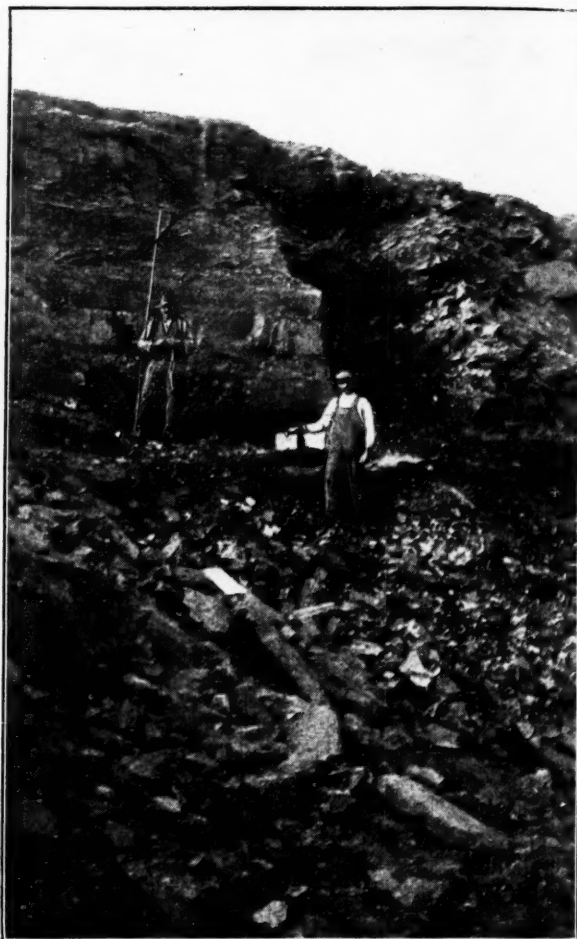


FIG. 5. PREPARING TO "SPRING" A HOLE BEFORE BLASTING PILLAR OF COAL

The stripping of an old mine is accompanied by many difficulties and dangers not encountered in removing the cover from virgin coal. Much of the ground over entries, rooms and breasts has caved in. Sometimes this breaking of the strata continues to the surface, resulting in a cave hole. In other instances the caving extends only part way up. In case the caving is complete, resulting in a hole or depression on the surface, the ground where the cave has taken place is always soft, yielding and treacherous. It often becomes necessary in such a place—over which a steam shovel must operate—to cover the caved ground with a mat of poles. Sometimes one set of such poles, 6 to 8 in. in diameter, laid parallel to each other and from 12 to 24 in. apart, is sufficient to support the weight of the shovel. Often, however, two

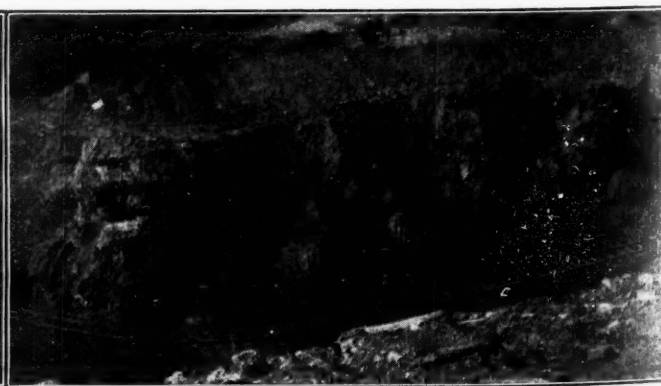


FIG. 4. PILLARS OF COAL ALTERNATING WITH OLD BREASTS FILLED WITH CLAY AND ROCK





FIG. 6. "MUD CAPPING" HARD ROCK IN FRONT OF A SHOVEL

or three sets laid at right angles to each other are required. Of course after they have served their purpose these poles may be pulled out and used over again in a similar contingency.

Sometimes the caving of an old breast may not extend entirely to the surface, giving no indication of danger. Under the weight of the steam shovel, however, particularly under the action of the side jacks, such ground is liable to cave suddenly, either engulfing the shovel or tipping it over. It is sometimes possible, however, where the caving takes place under a side jack, to catch the machine and prevent its leaving the rails by quickly pushing against the ground with the dipper. Bad accidents and nasty upsets have more than once been prevented by this method.

#### TEN MEN MAKE UP A SHOVEL GANG

At Ebervale each steam shovel is operated by a gang consisting of 10 men. This includes one shovel runner, one craneman, one fireman, four jackmen, one coal man, one spotter and a night watchman. The shovel runner and craneman control the movements of the dipper. The runner operates the engine which raises and lowers the dipper, as well as the one which swings the boom. The craneman operates the crowding engine, thus regulating the depth of the cut taken by the dipper, removing it from the bank when it is full. He also trips the bottom, which discharges the dipper contents at the proper time. As the output of a shovel depends entirely on the combined skill of these two men, they learn to work in what might be termed synchronism, each performing his duties in perfect conjunction with the other.



FIG. 7. PRACTICALLY VIRGIN COAL NEAR THE OUTCROP

The engineer or shovel runner is in charge of the shovel. He sees that the jackmen have the road ready in front of the shovel so that no time is lost in moving up to new work, also that the jacks are properly placed and tightened and that care is exercised in moving. The fireman not only keeps up steam but in large measure cares for the hoisting and swinging engines. He sees that the machinery is properly oiled, that grease cups and lubricators are kept full and that proper water connections are made and maintained.

To the coal man is intrusted the duty of keeping the shovel supplied with fuel. Before the coal was reached at this operation fuel was hauled to the shovels in carts. Since that time, however, it has only been necessary for the coal man to pick up and carry the needed amount of coal to the shovel. As the quantity of this fuel-coal is almost infinitesimal as compared with that produced, it is furnished gratis by the owner of the property.

The material excavated by the steam shovel in stripping the coal measure is hauled to the dump by "lokiess"—small steam locomotives—each handling a trip of from five to eight cars of 4-cu.yd. capacity each. The runner or engineer usually has a fair knowledge of the mechanism of his engine, and as severe grades are encountered, no small amount of skill is required to haul or push the cars over them. Each lokie runner does his own firing.

The "spotter" is a signal man. He indicates to the lokie runner the exact position in which to place each car at the steam shovel in order that it may be most advantageously loaded. He also removes from the cars dangerous overhanging material and cleans the track of rock and dirt spilled upon it.

Of course in a strip pit the roads have to be changed frequently; consequently a gang of roadmen is kept busy

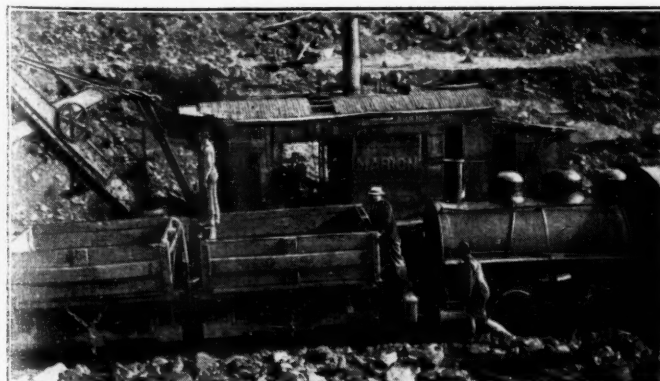


FIG. 8. LOADING COAL FROM THE VEIN BY STEAM SHOVEL



FIG. 9. TRIMMERS THROWING ROCK AND REFUSE FROM COAL CAR



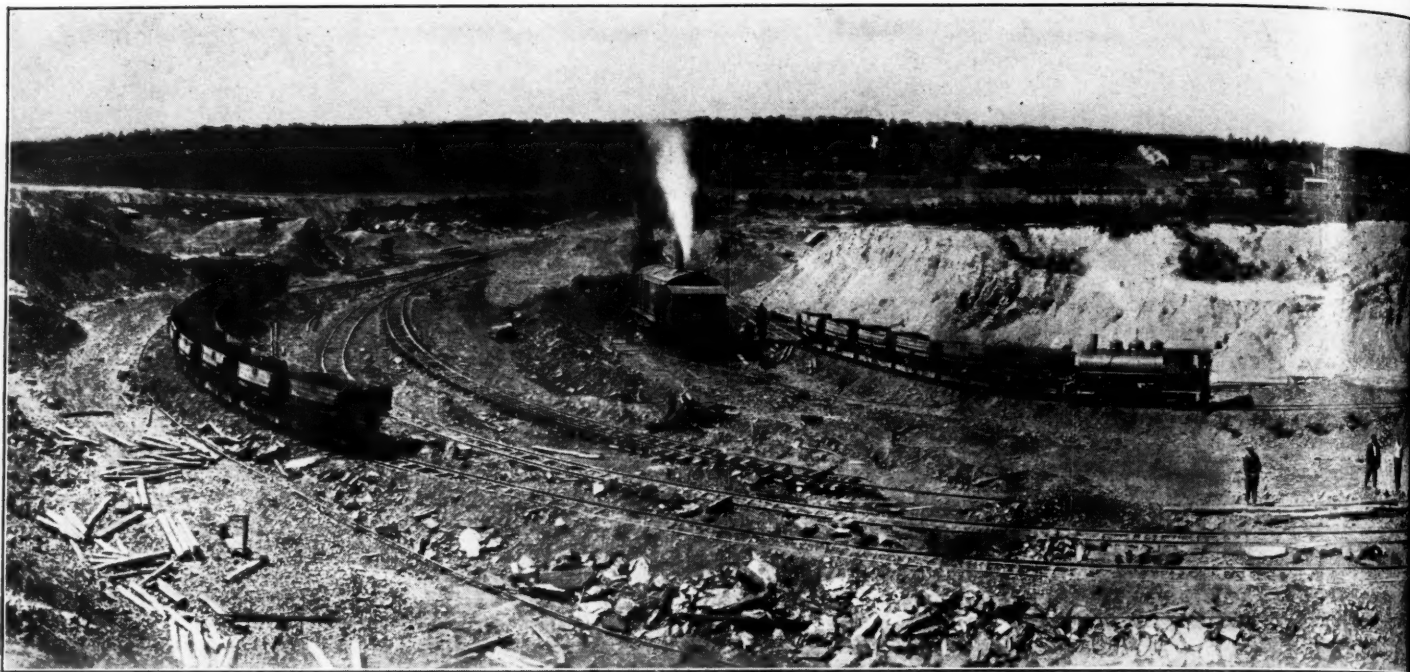


FIG. 10. A PANORAMIC VIEW, SHOWING PART OF THE STRIPPING OPERATION AT EBERVALE. FIVE SHOVELS AND 35 LOCOMOTIVES ARE

either building new tracks or repairing those which have become defective. Considering the temporary nature of the trackage, little trouble is experienced from derailments.

When a trip of loaded cars reaches the dump or spoil bank, a dump gang, consisting of eight men, quickly discharges the contents of the entire trip. The cars are of the side-dump variety and can discharge from either side. All spoil banks are so located that they will never interfere with possible future operations.

After the dirt has been removed from above the coal the latter is loaded into cars by means of steam shovels. Of course it is impossible in an operation like this, where a part of the coal has been removed by underground mining, to avoid a certain admixture of clay and rock. If the proportion of rock is above a certain amount the material is sent to a separate spoil bank which will eventually be worked over, the material being washed and otherwise mechanically prepared for market. This spoil bank is estimated to contain about 40 per cent. of coal, the remainder being dirt and rock.

As was stated, the Wharton coal bed, about 4 ft. thick, underlies the Mammoth, being separated therefrom by from 12 to 18 in. of slate. The Wharton vein contains a hard and tough black rock parting, locally known as "the nigger." This as well as the slate separating the two measures and the hard strata, sometimes encountered above the coal, is too tenacious to be readily dug by the shovel. These strata are therefore shattered with dynamite and powder and both coal measures loaded together.

To prevent an excessive amount of rock being loaded with the coal, two or three trimmers are employed at each coal-loading shovel. They pick the larger pieces of rock from the coal as the material is loaded. Of course the shovel operators become quite skillful in handling the dipper and are able to leave the larger portion of the rock on the ground.

When a trip of coal cars is loaded it is hauled to Jeddo No. 7 breaker, where it is prepared for market.

The distance from the point of loading to the breaker is about a mile and a half.

The wages paid to the men at Ebervale are considered fair and equitable for the anthracite region. Laborers receive \$1.65 per day and up; lokie runners, \$2.42; crane-men, \$3.10, and firemen, \$2.10. Foremen receive \$100 per month, while shovel runners draw \$140 a month.

In a good day's run, devoid of accidents, one steam shovel with a  $2\frac{1}{2}$ -cu.yd. bucket will load 350 cars with rock and earth. As each car holds 4 cu.yd., this is equivalent to about 1400 cu.yd. of material handled. An accident, such as a derailment, causes a serious break in the organization and may greatly diminish the day's output. The men, however, become quite skillful in replacing cars on the track, and where great speed is required—as where a derailed car will hold up a trip—a lokie is frequently employed to facilitate replacing the car. For this purpose the front set of wheels is spragged and a chain or cable is made fast to the top of the car box upon which the locomotive pulls. This raises the rear set of wheels clear of the ground, when they may be swung to a position over the rails and lowered upon them by the lokie giving slack. The wheels on the track are then spragged, while the locomotive, by pushing on a pipe set against the upper portion of the car, lifts the front set of wheels, when they may be swung upon the track in a similar manner.

If the derailment occurs at or near the steam shovel, a chain attached to the car and hooked over a tooth of the dipper may readily lift a car, or one end of it, onto the track, when the other end may be similarly lifted into place. The locomotives are often employed also for pulling short sections of track into position. In short, the men at a strip pit soon learn to utilize the various machines to suit their convenience, and thus minimize the time lost through accidents.

The stripping at Ebervale was begun in 1913 with two  $2\frac{1}{2}$ -cu.yd. steam shovels. There are now on this single operation 10 steam shovels—5 stripping, 4 loading coal



STEAM SHOVELS AND SEVEN LOCOMOTIVES ARE PLAINLY VISIBLE IN THIS PICTURE. TEN STEAM EMPLOYED AT THIS OPERATION

and 1 loading culm. There are also 35 locomotives, about 300 cars and something like 20 mi. of rail. The company operating at Ebervale has in all nine stripping operations under way in the vicinity of Hazleton, all of which except this one are worked on a yardage basis. These various operations require 28 steam shovels, 25 of which are Marion, with 3 Bucyrus machines; 100 locomotives, which were built by the Vulcan Iron Works, of Wilkes-Barre, and about 1,000 cars, which were built by the company in its own shop. These are all of 4-cu.yd. capacity and of 36-in. track age. The company maintains its own shop in Hazleton, where cars are built and repairs to practically all the equipment made. It also maintains its own engineering corps.

During the past 12 years the Central Pennsylvania Quarry, Stripping and Construction Co. has moved, including coal, approximately 72,000,000 cu.yd. of material, and has now under contract enough more work to bring its yardage to an amount exceeding that moved in the building of the Panama Canal.

The foregoing clearly shows the vast amount of equipment necessary successfully to prosecute stripping operations on a large scale. A few years ago it was considered that 4 cu.yd. of earth could be moved in order to secure 1 cu.yd. of anthracite. At present this ratio has increased to approximately 8 to 1.

The depreciation of equipment on a stripping operation is high, in some instances as much as 25 per cent. being allowed for depreciation and repairs.

The men who can shoulder and carry to a successful conclusion such an undertaking as has been described must possess certain personal qualities in superabundance. They must be either naturally or by training civil engineers, level-headed business men, good organizers, able executives, and finally they must be able to win and hold the confidence and loyalty of their subordinates and employees. From the financial standpoint, also, it requires nerve to start such an extensive undertaking where the exact nature of the rock overlying the coal meas-

ure is not and cannot be definitely known. A nest of boulders or an accumulation of hard conglomerate, either of which would require extensive blasting, might easily turn a contractor's profit into a considerable loss.

Of course the contract to remove the coal from the worked-out area at Ebervale was undertaken primarily that profit might accrue to the people who did the work. It should not be overlooked, however, that by this means coal is produced cheaply and safely, and practically all of the fuel in the coal-bearing measures is reclaimed, and none of the wealth with which Nature has so richly endowed this vicinity is wasted through imperfect and extravagant mining methods.

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### California Is a Producer of Coal as Well as Oil

Although California oil has to a large extent displaced the use of coal as a fuel in the Pacific Coast States, two California mines reported an output of coal in 1914. In order not to reveal the individual output of these mines their production is grouped with that of the one producing mine in each of the states of Idaho and Nevada, and the total combined production of the three states in 1914 is given at 13,974 tons, valued at \$39,821, according to the Geological Survey.

Coal mining and the coal trade generally in California lay little claim to importance among the industries of the state, particularly since the beginning of the present century, when the production of petroleum began to exert so powerful an influence on the fuel consumption of the Pacific Coast. From 1910 to 1912 inclusive, the coal production of the state was only a little more than 10,000 tons in each year; in 1913 work was resumed on the Stone Canyon properties in Monterey County, and the production increased to 24,839 short tons, valued at \$84,073. The output of 1914, however, showed an appreciable decrease. The only other production in 1914 was from the Ione mines, in Amador County.



# Correct Tipple Design--II

By M. L. HYDE\*

**SYNOPSIS**—The second and final article on this subject. The advantages of the jiggling conveyor are here taken up and an imaginary and ideal tipple is described in detail.

In a well-designed tipple the picking tables for handling nut and slack should allow of bypassing their entire contents for a given period of time, direct to either bins or boiler-room conveyor. This necessity arises when a loader sends up an exceedingly dirty car of coal; for while the lump and egg can be hand-cleaned during the time allotted for their passage through the picking room, yet to get all the dirt from the nut by hand would hold up the tipple such a length of time as to more than offset the small value of the coal won; therefore no time should be lost in side-tracking this undesirable product.

Tables should also permit the bypassing of smaller grades to a transfer conveyor, which can in turn discharge to conveyors leading to such auxiliaries as the washing plant, rescreening plant, coke-oven supply bins, etc. Not only the small grades, but the lump as well,

close a loss to any grade. With very friable lump, dragged at 40 ft. per min. over a distance of 100 ft., the writer, after numerous tests, failed to observe any loss or any accumulation of fines.

The drag carries equally well on either strand, is light, easily installed, can discharge at any point in its entire length, and do it with a gentle forward pushing of its load. This is an utter impossibility with the apron, the discharge of which over the head sprockets is the roughest of any table on the market.

The drag requires the same lubrication from end to end as does the apron, and is rather high in power consumption. In every other way it is the better table.

Standing in a class indisputably alone is the horizontal shaking table, marketed under the trade name "Marcus" by the Roberts & Schaefer Co., Chicago.

The Marcus consists of a steel trough from 3 to 6 ft. wide with 10 in. high sides, the whole riding on a series of 9-in. floating rollers, which are held to their runways by springs leading from their axles to the trough and to the supporting structure. A self-contained driving head, belt-driven from a motor, gives the Marcus its jiggling motion. This motion is such that the period of maximum velocity is reached at the end of the forward stroke; in other words, the entire moving mass is brought up to a high speed and then jerked back, the coal continuing to go forward as a result of the velocity imparted just before reversal.

The driving head, carried on an independent steel or concrete frame, throws no vibration on the tipple, requires little power, is simple in design and construction, and is the only part of the entire unit requiring lubrication or other attention. The trough, which is of the simplest sheet-steel construction, carries the coal in a uniform stream and without attrition. It is also an efficient screen and can be made with two or more decks.

When a separate Marcus is installed for the lump and another for the egg and under, most satisfactory results

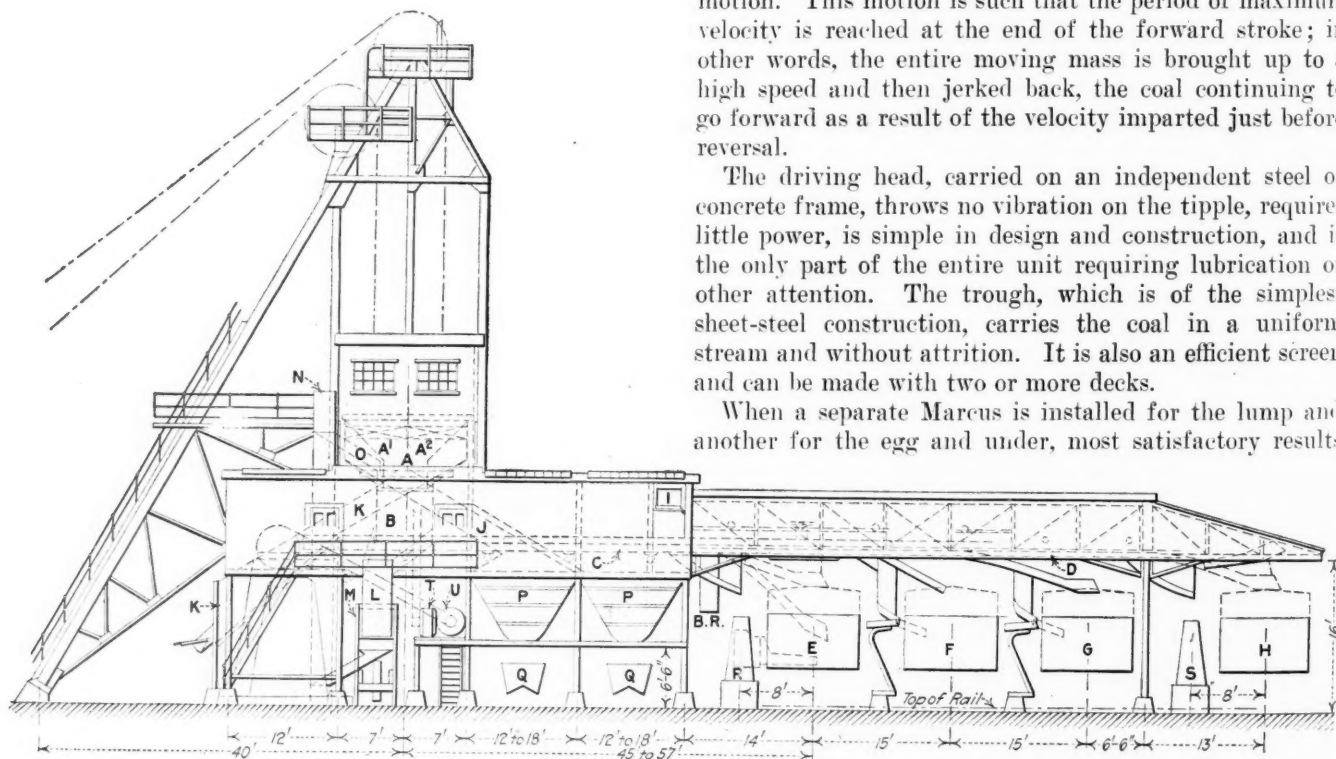


FIG. 3. A SIDE VIEW OF AN IDEAL TIPPLE

should be easily diverted in case locomotive coaling stations or storage bins are installed.

More elastic than the apron and less costly is the drag conveyor. If designed with bar scrapers of the same depth as the chain links—say 3 or 4 in.—it will carry coal in a uniform stream of whatever depth fed by the preliminary screens. As far as attrition to the coal is concerned, it is doubtful if the most careful check would dis-

can be realized. The former allows of cleaning the lump, lip-screening it, and of loading with the utmost care either in open or box cars. With the lump car tracks located on the inside nearest the dump, this grade is given preference on the short travel.

The Marcus for the small grades should have two decks, permitting immediate removal of the slack to the bottom deck, where it travels to either cars or such bypass as may be desired. This leaves exposed, free from fines, for pick-

\*Pembina Coal Operators, Ltd., Evansburgh, Alta., Canada.



ing, the egg and nut, which can be further lip-screened before going to the cars.

The troughs should be 5 or 6 ft. wide, and if 24 ft. clear picking length is provided, 6 or 8 boys can work at the table and handle 150 tons per hour easily. With a very dirty coal this length should be increased to 30 ft. and more boys employed.

The Marcus carries and thoroughly screens either wet or dry coal, is neither dirty nor dusty, allows the boys

also for egg as well, since owing to the high elevation of the picking tables or screens discharging onto it (this elevation being required to allow the boom in raised position to clear the rails by 16 ft.) the chutes for carrying the egg to the cars would be unreasonably long and steep. It eliminates lip-screening, which is a most necessary

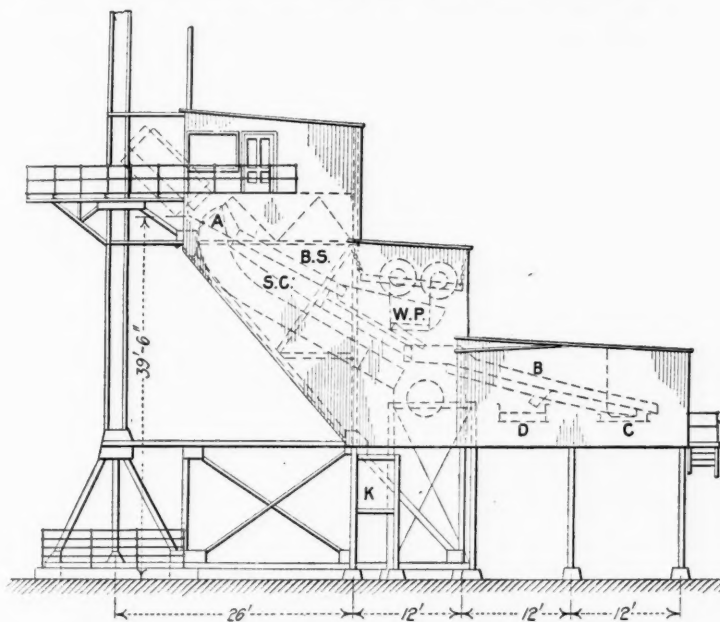


FIG. 5. END ELEVATION OF TIPPLE WITH BAR SCREENS

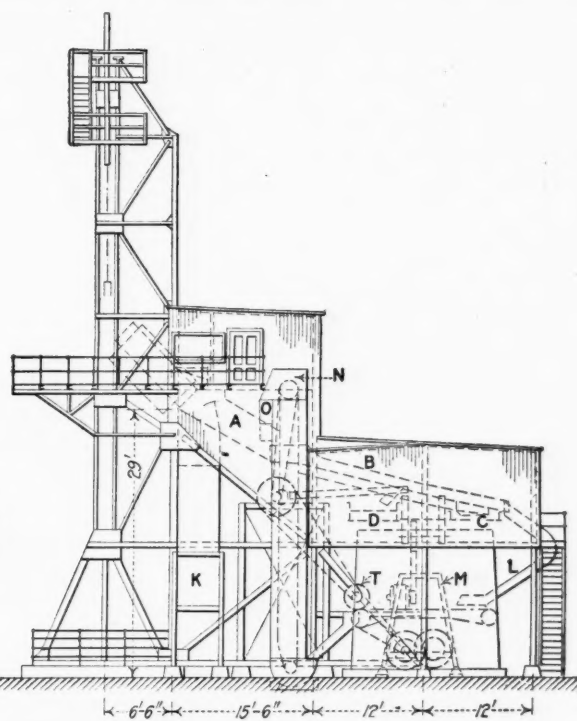


FIG. 4. END VIEW OF TIPPLE

to stand close against its sides, with no danger of their being hurt, and has all the advantages of the drag in discharging. It should be set to clear the rails 16 ft. as against 21 ft. required for the apron.

In every way the Marcus fills a long-felt want on this continent, where for years we have spent our energies designing structure after structure, each more elaborate than the last, each with its complement of feeders, balanced screens, apron tables, hinged loading booms, revolving screens, etc. Each cost considerable money and all were ungainly and high in upkeep. With the advent of the Marcus necessity for them passed away.

In the loading chutes, because of the low clearance required for the Marcus over the railway tracks, material improvements can be introduced.

The hinged loading boom is today the most popular means of getting coal from the tippie to the car. On paper it is all the heart could desire. In actual practice it consists of one end of an apron conveyor carried between two trusses about 35 ft. long, hinged at one end to the floor of the tippie and suspended from an electric hoist at the discharge. Assisting the hoist are a series of counterweights and safety chains, for the weight of the loaded machine is enormous.

An operator lowers this boom to the bottom of an open car, starts the conveyor and slowly cones the coal up by raising the boom. It loads gently and uniformly. The average drop from boom end to coal is from 2 to 4 ft. Less than this will foul the boom on coal already discharged.

The first cost of this machine is excessive. It requires power drive, and where used for lump, should be used

adjunct of all lump chutes, for the rolling over of this grade during picking is sure to cause some fines, which must be removed before loading.

It eliminates also all chance of the satisfactory loading of box cars and of using box-car loaders. It requires an operator, is high in upkeep and is subject to serious damage if a car during the loading process should get away. To summarize, for the privilege of end-loading open cars, this complicated equipment is being installed at a cost many times the investment required for the Marcus, with its manifold advantages in every department.

The requisites of a loading chute should be ease in operation, simplicity, ability to cone the coal from top to bottom of any size or type of open car with a minimum breakage, ability to put coal through the doors of box cars without drop or jar between the picking-table discharge and that point. It should be easily hoisted to clear the rails by 16 ft. when not in use, and should be of a design permitting as little spillage as possible. Such a chute is shown in Fig. 9 and is later described.

Many operators are prejudiced in favor of end loading for open cars. Every advantage this system can show is fully covered in actual practice by the chute illustrated. This chute should be used for lump, egg and nut grades. Slack requires nothing more than a plain gravity type of chute without adjustment other than clearance when not in use.

All tipples should be equipped with box-car loaders for lump. This grade cannot be satisfactorily loaded by hand. When the mine's daily capacity exceeds 1000 tons, a loader should be furnished for the egg as well; if this is not done, three men will be required in a car loading

any combinations with this grade as against one man with the loader.

The loaders recommended as being the gentlest in handling the coal, requiring the least power and being the easiest to operate and repair, are those made by the Manierre Engineering Co., of Milwaukee, Wis., and no operator should let his tippie contract without first personally assuring himself of the correctness of this statement. One type of loader can easily make from 1000 to 2000 lb. more slack in a car than another of better design; and the sales department well knows the trouble and dissatisfaction this may cause.

#### A STANDARD TIPPLE IS ASSUMED

Fig. 3 shows a side elevation and Fig. 4 an end elevation of a tippie meeting all the demands imposed in the foregoing part of this paper.

This tippie has a capacity ranging from 750 to 3000 tons per day, no alterations being required except in the width of screen. Notice the clean roof lines, freedom from unsightly projections, common floor line, ease of getting at all sides of each machine and the complete lighting system. Compare the height of dump, 29 ft., with that of other so-called modern tipples. Regardless of the amount of rain or snow fall, the building is suitable and can be maintained in first-class condition at small expense.

While a shaft design is shown, the whole arrangement is applicable to drift or slope mines. The location of the dump hopper would be as shown, and the rotary dump or conveyor discharge arranged to suit.

The headframe is of the end-hoisting type which is preferable to the side hoist because of simplicity and small angle of fleet of hoisting ropes, allowing of a single-drum hoist. It has a landing stage at both the surface and the topman's office. Stairs to the upper landing and to this office are carried up the engine brace. All entrances are carefully protected with iron fences 6 ft. high.

Cages of the Wellman-Seaver-Morgan Engineering Co.'s make, or their equal, are recommended. Such cages are substantial in design, safe, and gentle in their discharge. The car, on being thrown forward in the dumping position, has its end door caught and lifted clear of the coal, which flows forward to the hopper *A*, during which time the topman removes the loader's check.

Passing over *A*, the coal flows to the screen *B*, where it strikes a level section 3 ft. long, acting as a feeder to the egg perforations immediately following, and at which point the egg, nut and slack are separated from the lump, falling to a lower deck, which in turn discharges to the Marcus picking and screening table *D*. The lump passing the egg perforations goes next over the cobble perforations, the undersize passing through to the table *C* and the oversize to chute *L*. By unbolting the cobble screen all lump passes direct to *C*.

Screen *B* is belt-driven by a motor set in the motor house under the main floor. This houses all motors by themselves, which places the responsibility for their upkeep in the hands of one man, as no one else can get at them. Though not shown, this house should have dust-proof sides and roof and approach stairs from the ground.

On the Marcus table *C* the lump coal is picked, lip-screened, and discharged to open cars on track *E* or to box cars by means of the Manierre loader *R*. Care should be taken in the design of a tippie to avoid having to send all lip-screenings to slack cars; for if this is the only

method of disposing of them, each time a slack car is changed the whole tippie will have to stop, as the loading of lump cannot go on.

On Marcus *D* the egg, nut and slack jiggling forward pass immediately over a slack screen, leaving the two larger grades unobstructed and in perfect condition for picking. The slack falling through moves forward on a lower deck. At the end of the picking surface the egg and nut again pass over a lip screen, sending all chippings resulting from picking through to the slack. The egg rides forward to open or box cars on the track *H* or to the box-car loader *S*. The nut is separated from the egg just before reaching the chutes at track *G* and falls to a lower deck, thence to cars on this track, the slack having already left the lower deck at track *F*. By means of valves closing the discharge to chutes over the tracks, the nut and slack can go forward, allowing of the following combinations: Track *H*—Egg; egg and nut; egg, nut and slack. Track *G*—Nut; nut and slack.

From Marcus *D* slack, or nut and slack, can be bypassed to the boiler-room conveyor at chute *B R* or dropped direct to the bins *P*. Where nut and slack are diverted to either of these channels the slack screen on this table should be replaced with a nut screen, as it would be unnecessary to pick the nut in that case.

As few obstructions in the way of columns as possible should be allowed between the tracks, the tables and chutes are therefore carried by trusses over tracks *E F* and *G*. Elevated walkways, not shown in the drawing, should be placed between the cars at a height of 6 ft. to facilitate movements of car loaders.

The pivoted box-car chutes, falling through car doors in forward position, are carried on concrete blocks. On each of these at *F* and *G* and on the foundations of loaders at *R* and *S* should be mounted car retarders of the Fairmount Mining Machinery Co.'s design to allow of shifting open cars during loading. These are inexpensive and of decided advantage on every track.

The cover over all tracks is 24 ft. long and forms an ample rain shed for loading cars.

On lump track *E* the following combinations can be made: Lump; lump and egg (accomplished by changing the egg perforations on preliminary screen *B* to nut perforations, sending the lump and egg both to Marcus *C*); lump, egg and nut (accomplished by a plow on Marcus *D*, which discharges the egg and nut to the transfer conveyor *I*, in turn feeding Marcus *C*); lump, egg, nut and slack (same process).

#### ALL MOTORS ARE DUPLICATES

The two Marcus tables are driven by a duplicate of the motor employed to drive the screen *B* placed in the same room with the other motor. Both the tables *C* and *D* and screen *B* are controlled from the picking room, so that all machinery can be stopped for very dirty coal, changing of cars or accidents.

Waste from the tables is dropped through spouts to the bins *P*, placed directly under the picking-room floor. From these it is discharged through roller-bearing slide gates to cable cars *Q* of the hinged side-door type. These cars are hoisted to the waste pile by means of a two-drum electric hoist set next to the box-car loader *R* and handled by its operator during lulls. The cars are dumped on the pile automatically, the entire outfit being furnished by the R. W. Hunt Co. or the John A. Mead Co.

One drum of the hoist is used for cars *Q* and one is so led that it can be used for handling railway cars about the tippie. During cold weather trouble is often experienced moving cars, and at all seasons the yardmen are apt to drop a car too far below the tippie and it must be brought back. This is a hard job with an old stiff car, but all this work is accomplished by the extra drum.

The waste bins *P* should be of the Berquist suspension type, self-emptying, easily repainted and repaired. The cars *Q* and the track upon which they run should be installed as soon as the tippie stakes have been driven, after which all yardage from shaft sinking, foundations,

through a chain from the eccentric shaft of screen *B*. Local coal is obtained by opening the valve *A'* in the receiving hopper *A*, and thence by means of a deflecting valve operated by the topman sent to the local coal bin *K*, so set that its wagon feed valve is well away from the tippie. By throwing the deflecting valve previously mentioned rock can be spouted by chute *J* to the inside waste bin *P*, extended and roofed to care for this storage. The transfer conveyor *I* not only feeds table *C* but by means of it any of the small sizes may be sent to any of the auxiliary units desired.

The loading chute illustrated in Fig. 9 is of  $\frac{1}{4}$  in.

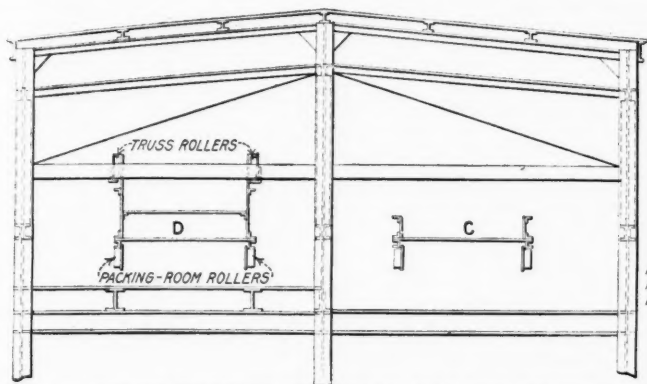


FIG. 6. CROSS-SECTION THROUGH MARCUS CONVEYORS

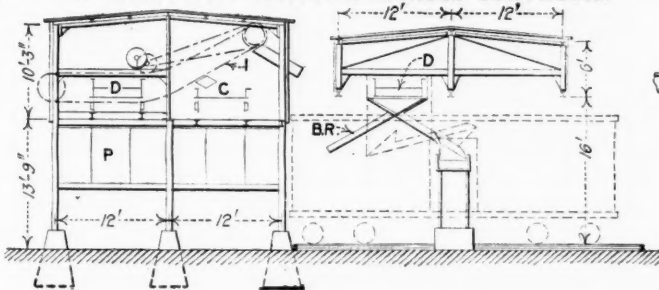


FIG. 7. SECTION THROUGH PICKING ROOM

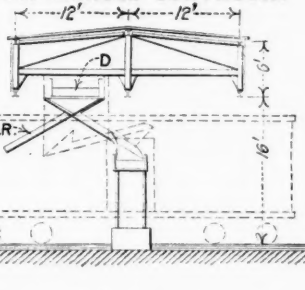


FIG. 8. LOADING CHUTES FOR SLACK AND NUT

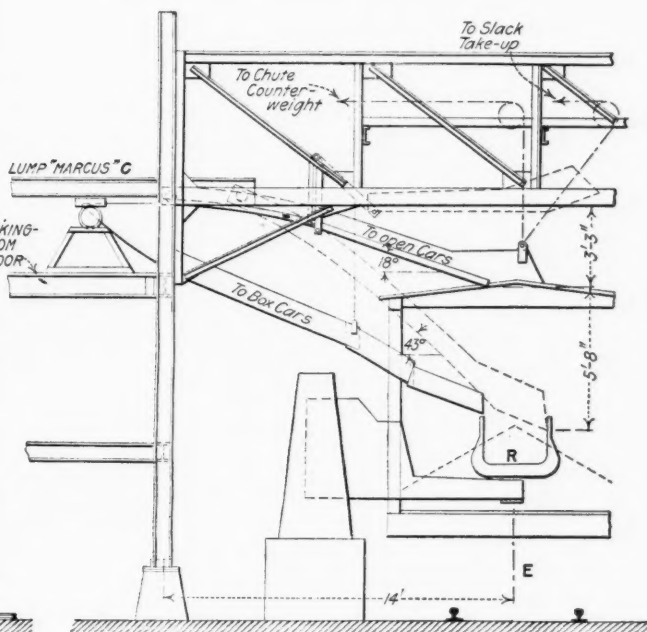


FIG. 9. ARRANGEMENT OF CHUTES AND BOX-CAR LOADER

ditching and ground leveling can be sent to the waste pile, which will be used for all time. If this is done, the plant site will not be littered by waste piles occurring here and there merely because the designer failed to consider this question in the first place. In fact temporary extensions to this track can handle all dirt from the rest of the plant units and townsite excavations. Three all-steel cars should be furnished complete with hoist and ropes, as well as trackage.

Lump for cracking passes over the Marcus *C* to the chute *L*, thence to the cracker *M*. The Whitaker coal breaker, manufactured by the Hardy Patent Pick Co., of Sheffield, England, is shown herewith and is the most suitable known to the writer.

Briefly, the breaker consists of a series of mechanically worked picks acting on the coal traveling on a short steel belt conveyor, the action being precisely that of hand breaking with mechanical regularity. The unit is driven by a 10-hp. motor and has a capacity of 200 tons per hour.

From the breaker *M* the cracked lump flows to the boot of the elevator *N*, which in turn discharges through the chute *O* to the head of the screen *B*. This elevator should consist of steel buckets 30 in. long, carried on two strands of steel-thimble roller chain, and should be wholly incased in a housing of  $\frac{3}{16}$ -in. steel. This elevator is driven

steel and is made up of two sections fastened together by a sword hinge. This hinge is bolted shut with wing-nut bolts as long as the chute is used for open cars. When box cars are loaded the hinge is unbolted and the lower section of the chute pulled up to the clearance line as shown. The rear end of the chute is supported by rollers.

In addition to the features already considered, arrangements should be such that prior to a shutdown coal can be sent to an auxiliary outside storage in sufficient quantities to care for the boilers and meet local demand during that time. This can best be done by deflecting coal over the rock chute to the waste bin *P*, thence by car *Q* to a pile separate from the main waste storage.

From the industrial waste tracks for cars *Q* a spur should be led at right angles to all railroad tracks and across them, so that car *Q* may be pushed over and loaded with spillage and other dirt between or on the tracks.

The following enameled signs should also be part of the tippie equipment: Instructions for signaling cages at every landing, "no smoking" signs at the foot of each stairway, blackboard at main landing for temporary notices. A check board for mine-car checks and an employees' register board should both be placed at the topman's office if upper landing is used; if the lower landing is employed, the register board should be at the lamp room.



# Analysis of the Coal-Car Situation

COMPILED BY A. T. SHURICK

*SYNOPSIS—Conforming with its usual custom at this period of the year, "Coal Age" presents herewith official comments from the leading coal roads as to the outlook for the coal-car supply during the coming fall and winter. The carriers are generally confident of their ability to handle the business as regards their respective lines, though it seems probable that for a period there will be a shortage in equipment.*

## AMERICAN RAILWAY ASSOCIATION

By Arthur Hale, General Agent

The surplus of coal and gondola cars reported by the American Railway Association for Sept. 1, 1915, was nearly 41,000. This is not far from last year's figure for the same date, which was 46,000, but the shortage of coal cars this year is over 2,300, while last year it was only 66. There was no large surplus of coal and gondola cars prior to 1914 until we get to 1909. There we find on Aug. 18 a surplus of about 42,000. In 1908 the surpluses were much larger until the middle of October. It is of course difficult to judge from these figures what the situation in coal cars will be in October and November, but in 1909 there was quite a marked shortage, which ran up to nearly 12,000 cars in the middle of November.

There is one point in which the record this year is similar to that of 1909; that is, the surplus decreased very rapidly in August, while in 1914 it came down very slowly. This would seem to point to the possibility of some little coal car shortage in the months of October and November of this year.

On the other hand, the drop this year seems to be about two weeks later than it was in 1909. Here again it is difficult to compare, because this year we have figures only for the first of the months, while in 1909 we had them for the middle of the months as well.

If we can judge this year's showing by that of 1909, there will be a shortage of perhaps 8,000 or 10,000 coal cars on Nov. 1, 1915.

## CHESAPEAKE & OHIO RY. CO.

By E. W. Grice, Assistant to President

This company is making an extraordinary effort to get its freight-car equipment in good condition for the fall and winter business, and expects to have its bad order list as low as practicable in numbers. This is also true of the locomotive equipment. Twenty-four Mallet locomotives have been purchased and are now coming on the road, and will be available for the autumn business. Several thousand box and coal cars are being rebuilt at outside shops, and we apprehend no difficulty in providing equipment for the business that will be offered. Additional yard and side-track facilities are also being provided. The new coal pier is working admirably, and is handling the business satisfactorily.

## WESTERN MARYLAND RY.

By S. Ennes, General Manager

We have contracted with the Lima Locomotive Works for 15 of the largest Mallet engines ever turned out for

road service, which we feel will give us power to handle promptly a large increase in tonnage. Our car supply has been good for the last 18 months, but in anticipation of increased business we have plans about ready for a 70-ton coal car and expect to ask for bids in the near future. Our track conditions are good, and we are making additions and improvements in our yards, so that I feel safe in assuring you as a representative of the coal industry, that we will be able to take care of our patrons in good shape.

## VIRGINIAN RY.

By S. M. Adsit, General Freight and Passenger Agent

There is nothing of special importance to report in regard to the car supply on the Virginian Ry. For the past 12 months the supply has been more than adequate and it will require a greatly increased tonnage to change this condition adversely.

## LOUISVILLE & NASHVILLE R.R.

By G. E. Evans, Fourth Vice-President

As conditions relating to the coal-car supply upon our lines are very much affected by the general situation throughout the country, because the coal markets are to a large extent beyond our rails, we hesitate to express an opinion.

## HOCKING VALLEY RY.

By M. J. Caples, Vice-President

There is no question but that the Hocking Valley will be able to provide a full car supply for all the mines on its line during the coming year. At the present time (Sept. 7) we have 3,500 coal cars stored on the line because there is not sufficient business to make use of them. At times during the current year this surplus of cars has been as high as 8,000, and it would be still greater but for the fact that we have sent these cars to other roads for loading.

## TOLEDO & OHIO CENTRAL RY. AND KANAWHA & MICHIGAN RY.

By F. B. Sheldon, Vice-President

We are not anticipating any shortage of equipment. Since the publication of your analysis of the coal-car situation one year ago the Toledo & Ohio Central Ry. has added seven heavy consolidation freight locomotives to its motive power and 2,500 steel coal cars of 50 tons capacity. This means an increase of 40 per cent. in the capacity of its coal-car equipment, which now amounts to 8,500 cars.

The Kanawha & Michigan Ry. has 6,000 coal cars. On Oct. 1, 1914, the Toledo & Ohio Central Ry. became the owner of the Kanawha & Michigan Ry. by the acquisition of practically all of its capital stock. Owing to the extreme depression of the coal industry the two lines have had for nearly a year past a very large surplus of idle coal cars, and with the revival of business, which has already set in, there is no likelihood of any shortage on our lines.

Our motive power is in good condition and ready to handle without delay all traffic that may be offered to us at any time.

## NEW YORK CENTRAL LINES

By F. E. Herriman, Coal Traffic Manager

The New York Central Lines are hopeful that there will be no difficulty in taking complete and proper care of the fuel traffic this fall and winter. As to motive power, increased yard facilities, etc., it is our belief that everything possible has been or is being done to maintain, and perhaps increase, the capacity of the system for handling coal tonnage.

By A. T. Hardin, Vice-President

The present returns appear to indicate some improvement in the situation. However, this company has a surplus of 13,000 cars in excess of present (Sept. 3) demands, and hopes to be able to meet all demand for increased traffic.

## BUFFALO, ROCHESTER &amp; PITTSBURGH RY.

By E. A. Niel, Coal Freight Agent

The policy of our company has been to maintain the the car supply on such a basis as to fully meet the requirements of our coal shippers, and we have generally provided for such equipment a little in advance of their actual demands; that is to say, we have anticipated the needs of our coal shippers and made the necessary arrangements for additional coal-car equipment, with a view of at all times furnishing 100 per cent. of the cars needed at the mines along our line. For several years past we have had no car shortages.

We have increased our motive power by the purchase of a large number of the heavier locomotives of modern type, thus preventing delays in shipments and thereby increasing the efficiency of the cars themselves. In addition to improvements in rolling stock and motive power, we are continually improving and strengthening our road-bed and eliminating curvature wherever economies can be effected, so that at the present time we are better prepared than ever before to handle increased coal tonnage in the most satisfactory manner.

The indications point to a materially increased demand for coal and a corresponding demand for cars, which will doubtless tax the ability of all lines in this section.

## DELAWARE &amp; HUDSON CO.

By C. S. Sims, Second Vice-President and General Manager

During the past year this company, in conjunction with the Pennsylvania R.R., has finished the construction of the Wilkes-Barre Connecting R.R., uniting the rails of the Delaware & Hudson with those of the Pennsylvania through the city of Wilkes-Barre. This does away with the congestion and delay formerly encountered in passing through the city limits and adds enormously to the traffic possibilities, probably bringing about a decrease in the average time requirement of at least half a day. We are also building just south of Carbondale a modern plant for the storage of anthracite coal.

## CENTRAL R.R. CO. OF NEW JERSEY

By W. G. Besler, President and General Manager

So far as the Central R.R. of New Jersey is concerned, there is nothing of unusual interest to report. We have kept our property and rolling equipment right up to their usual high standard. We have worked our shops full time and augmented the forces by several hundred men, so as to have our equipment in an A1 condition to provide for a possible increase in business. We expect for the future, as we have in the past, to be able to take care of all of our patrons.

## PHILADELPHIA &amp; READING RY.

By A. T. Dice, Vice-President and General Manager

I can only say that the experience of this company has been for a number of years past that we have always been able to provide a full supply of coal cars for shippers on our line, and I see no reason why we shall not be able to do the same during the coming winter.

## DELAWARE, LACKAWANNA &amp; WESTERN R.R.

By E. E. Loomis, Vice-President

We hope and expect to fill all demands for cars to load with coal on our line during the coming year.

## Extracts from a Superintendent's Diary

I received a letter from the general manager of our company today in which he requested me to give his oldest son a position at our camp in any capacity that I might decide would be best for the young man. He is 23 and has just graduated from the Columbia School of Mines in mining engineering.

At first I felt very much puffed up by the compliment, for such it surely was, because the general manager had the pick of twelve superintendents. Just why he should have chosen me I of course could not tell, but the fact that he is willing to have the boy lay the foundation for his career under my guidance is pleasing to say the least.

After looking at the matter from all angles, however, I am sorry that I cannot thank the general manager for the compliment and then pass the responsibility on to one of the other superintendents.

It goes without saying that the general manager does not expect his son to remain in one position long; he wouldn't be a normal general manager if he did. What he desires is that the boy be given a chance to familiarize himself with everything in connection with the operation of a coal mine, as no doubt he intends to put the son in charge of an operation as soon as he acquires the necessary confidence and experience. All of which is very desirable and possible from his standpoint, but very difficult from mine.

Assuming that the boy is all that he ought to be (which he probably is not) and that he will be very anxious to make the most of his opportunities (which he also probably will not), there is still the possibility of engendering much hard feeling all along the route that he will travel. It is so natural for men who have had to hold on to minor positions longer than they consider necessary (and most men in minor positions come in that classification) to assume that advancement can only be obtained through a "pull" that, if they have an opportunity of seeing this favored son pass merrily along from bottom to top without noticeable effort, they will be more than apt to become discouraged if not embittered.

In the one case the rapid rise to power furnishes an example that thrills all who have been thrown in contact with the fortunate one, and here and there some discouraged struggler even takes a new grip on life; but the rise of the manager's son would have no such bracing effect.

I am unable to get enthused over the fact that I may have the opportunity to assist in this matter. Possibly the realization of the fact that some day he will outrank every one in our camp, myself included, may have something to do with my feelings in the matter, but I wouldn't admit in public that any such ulterior ends could sway me.



# The Labor Situation

**SYNOPSIS**—*The tradespeople in the anthracite region are anxious to remove the menace of a strike and want a speedy convening of operators and miners. The right of miners to unionize outside the U. M. W. of A. is being tested in West Virginia. Attorneys for the miners in Colorado are charged with subornation of perjury. J. D. Rockefeller, Jr., visits his Colorado miners.*

The tridistrict convention has met and adjourned. The demands of the miners though intended to be fair are nevertheless unreasonable. The papers of the anthracite region assure us that they are no more extravagant than has been customary, and so perhaps it would be safe to assume that the usual trade discount can be applied to them and that the miners will not adhere rigidly to their circular.

It will behoove the operators to go carefully over the ground and make up their minds as to the rights of the situation and declare what these are. If the cost of living has advanced, the miners are entitled to an increased wage, and this is still true even if it be proved that some of the operating companies are not able to make fair returns under the present scale. The public can, must and should pay this increase, and the operators should give the consumers a clear understanding of what new price must be established to restore the status quo.

## A Public Which Does Not Know Cannot Be Censured

The people should not be asked to pay any more than will indemnify the companies for the increased cost of production resulting from a larger wage and workmen's compensation. The consumer does not know just why the larger wage must be principally placed on the domestic sizes, especially if the bituminous operators do not concede an equal rise in wages. He does not know that because he demands the cream of the coal he must shoulder the bulk of the burden. He does not understand these things because he has never been told. Only a "divine right" utterance has been given him upon which he has placed a somewhat unfair interpretation. He is accordingly not to blame, because a lack of knowledge of facts is not like an ignorance of the law. It excuses the newspapers in publishing and the public in accepting a large amount of misinformation.

A careful and accurate statement should be prepared, quite unlike one which has just been received, which, by the way, was not issued by the anthracite operators. It says, speaking about the Scranton wage demands: "The employee intends to take the position of dictator, while the employer will be expected to take a humble seat." This plaint will not appeal to the democracy. The successful advocate of the operators' rights must make no reference to the question as to who is running the mines—the operators or the men they employ.

The statement which will convince will show that profits are necessary, that the old scale was declared by a commission to be reasonable, that the changes are or are not justified by an increase in the cost of living and that advances in price are warranted by increases in cost. The public is not disposed to believe that property has any rights to profit and increment except through service and does not care who is in the saddle so long as the ends of good government are sustained. The mine operator is performing a service; his profits, if in reason, promote the public good. He is, in seeking his self-interest, striving after economical production which serves equally the public advantage. The dictator and the servant are one, and neither party has a right to say, "We demand," as do the miners, without fortifying his position with argument. Once deny the duties of the operator and you surrender your right to hector the working man for his lapses in civic virtue and common sense.

## Wilkes-Barre Dreads a Delay in the Wage Decision

The trades people in the anthracite region, especially in Wilkes-Barre, are rebelling against the delay in negotiations. They feel that the convention at Scranton, the canvass for membership and the tridistrict meeting in Wilkes-Barre have created such a strong feeling of apprehension that business is sure to suffer. The miners also will hoard in anticipation of a strike and all trade, based on their needs, will be bad.

The Chamber of Commerce in Wilkes-Barre wants the miners and operators to meet before the Indianapolis conven-

tion has commenced its sessions, not after. This meeting begins on Jan. 17 and will probably remain in session until Feb. 5. For some time after that the merchants will be in suspense, and if a settlement is not secured in seven weeks the strike may be called.

The business men fear they may experience five lean months followed by several weeks of actual idleness. The enforced economies, however, if not followed by a strike will be of great advantage to everyone. There is a strong tendency for the wage earner to live up to the last cent of his income, and just before a strike the workingman learns what it means to receive money and put it by for a rainy day.

Mr. White hopes that he will have 123,000 men in the union when he meets the operators. Last month there was a paid-up membership of 63,108; but in addition it is said that there were enough members who were exonerated from paying dues from lack of work to bring the number up to 100,000.

## Another Injunction Is Brought by a Mine Worker

Thomas Holton, of Local 996, has begun an action in equity against Peter O'Donnell, enjoining him from acting as a member of the executive board of District No. 1 of the United Mine Workers of America. O'Donnell received 6,937 votes and Holton only 5,842, but Holton claims 6,903 and declares that O'Donnell should have only 5,031. The matter was well aired at the convention of District No. 1, and Holton's contentions are given in some detail in "Coal Age" of July 31, p. 175.

John Dempsey and John M. Mack, president and secretary respectively of District No. 1, and Richard Roberts, Martin Battle and Casimir Shemanski, the tellers, are made codefendants with Peter O'Donnell. This is the third injunction by mine workers in the last few weeks. It is evident that the union men are seeking to use the court of equity as generously as the operators. Now that they are using it they may find less popular opposition to the injunction. It may be predicted that when they have employed it for a while new virtues in its application will forthwith appear.

## Ohio Is Trying to Find a Place in the Sun

The Sunday Creek Co. is furnishing the miners of the Hocking district with a statement of the position of the operators on the wage scale signed more than a year ago. The company has sent out thousands of copies of the wage agreement without any comment. But the sections which are supposed to have been violated by the subsequent action of the officials in signing up eastern Ohio are printed in italics. The company hopes that by going over the heads of the officials of the miners' organization it will get the issue fairly before its men. It is expected that other literature will be sent out later.

As was to be expected, the operators in West Virginia have shown much concern about the proposed increased freight rates in that state and they intend to oppose the application of the Interstate Commerce Commission when it is made. The Kanawha Coal Shippers' Association, the Splint and Gas Coal Association of West Virginia and the Central West Virginia Coal Operators' Association have all met to discuss the change. At the meeting of the latter, which was at Fairmont, W. Va., 95 per cent. of the productive capacity of the Fairmont-Clarksburg district was represented.

There seems to be a fear that rates will not only be raised in West Virginia but also lowered in Ohio. The operators wonder that coal-freight roads which have done so well on the rates established should ruin, as they express it, both the state and themselves by raising freight rates.

The West Virginia people have shown little concern about their progressive ruination of other states and they cannot expect Ohio to show the virtues of consideration. It is true that a readjustment which would permanently injure West Virginia and make its production go backward would be inadvisable if not unjust. But it is much to be doubted if 15c. per ton would have so large an effect, for the state has had unquestionable advantages over its neighbors as shown by the progress in output and the number of new operations.

## Disputes Still Unsettled in Eastern Ohio

The miners and operators in the eastern Ohio district formed some time ago a joint committee, composed of Fred Ledvinka (representing C. J. Albasin), William Roy and Frank Woody for the miners and J. R. Roby, W. Osborne and Franklin Neff for the operators. They have been discussing the removing of rock, "pick-outs," the setting of timber and the cutting of room necks by machine men. They held a two-day session and on Sept. 15 adjourned without agreement.



An arbitration committee will be formed, with C. J. Albasin of Bridgeport representing the miners, the commissioner of the Pittsburgh Vein Operators' Association representing the employers and Thomas Wangler of Columbus, Ohio, as a third and neutral party. No commissioner has as yet been appointed by the P. V. O. A. in place of John Zalenka, recently deceased.

#### Boomer Coal and Coke Co. Forbidden to Pay Checkoff

On Sept. 13 about 1,000 miners employed by the Boomer Coal and Coke Co., at Boomer, W. Va., went on strike in order to bring pressure on the company not to yield to the officers of District No. 17 of the United Mine Workers of America. They feared the company would pay the checkoff to these men instead of giving the money they had collected to the officials whom the miners preferred.

West Virginia is in District No. 17, but recently a new division has been created by seceding unionists, which they term District No. 30. The company was about to pay the union dues to the officials of this newly erected district when the union asked for an injunction. The men who struck on Sept. 13 returned to work, the company urging that the issue was not theirs but the court's. The seceders have been fighting practically for the right of labor to sail under any flag it pleases, and the union has been endeavoring to compel the miners to remain within the fold whether they like it or not.

On Sept. 14 Judge H. D. Rummell refused to dissolve the injunction restraining the Boomer Coal and Coke Co. from paying money to the officials of District No. 30. So it appears that the corporation will hold the money in escrow for a further period.

#### Union Seeks Injunction Against Unionizing and Striking

It was also interesting to notice that the union asked for a rule against officials and others connected with District No. 30, charging them with endeavoring to cause a strike of miners working for the Boomer Coal and Coke Co. and bringing about a practical shutdown. But so far this petition has not been acted on. The rule would be as drastic as the most obnoxious of those granted in the past to operators against the unionizing of employees.

It is much more severe than the rule made by Judge Alston G. Dayton, which has been denounced from coast to coast and which is still creating trouble, though dating back to 1913. The miners have tried to have Judge Dayton removed for granting this injunction. Attorney Frank O'Brien, as special commissioner for Judge Dayton, is hearing evidence in the case of the West Virginia-Pittsburgh Coal Co. against Van Bittner, the president of the union in the Pittsburgh district, and others.

When the strike occurred in 1913 Fannie Sellers, James Oates and others were arrested and imprisoned on charges of using violence in forcing the miners to leave their work. The supreme court of Richmond overruled the decision of Judge Dayton, and the company is now asking for a permanent injunction to restrain the organization of the Brooke County field. The defense is endeavoring to show that there was no violence in the coercion used and pleads that an injunction is not needed, as there is now no intention to attempt any coercion.

The officials of District No. 14 seem to be making an attempt to secure a rule in central West Virginia which they openly declare the height of inequity in the Panhandle of the same state. It is to be observed that there is no coercion at Boomer. The men want to go into the new union, want to pay the checkoff to it and want to strike without hindrance from the old organization; and the union denies the miners the liberty, arguing probably that it has a contract with the operators making provision for its recognition, providing for the checkoff and forbidding strikes. But never so long as the union was undivided did it ever seek to restrain its men from striking by a resort to the injunction. Now it claims it has contracts which a strike will make it impossible to fill and pleads that the miners it is seeking to restrain will ruin its standing if allowed to conspire. The argument of the early operators is now being urged by the union as a reason for enjoining the miners who wish to form a rival body of their own.

#### Kansas, Indiana and Colorado Notes

The miners of the Sheridan Coal Co. in Kansas have won their strike and have returned to work. The right of workmen under the contract to be supplied with places at one mine when the mine of an affiliated company has been closed down was established. About 1,000 men were involved in the strike.

At the mine of the Deep Fourth Vein Coal Co., just west of Terre Haute, two blacksmiths were discharged. After

five days of arbitration, all the employees went on strike. Horace N. Hawkins, general counsel for the United Mine Workers of America, and Fred W. Clark, local counsel, have been charged with subornation of perjury, the information being filed by Attorney-General Fred Farrar. Grover Hall, a juror in the murder trial of John R. Lawson, made an affidavit that he stood out for an acquittal of Lawson, but finally agreed to a verdict of guilty as a result of coercive measures employed by Frank Gooden, a court bailiff. In that affidavit he stated that Gooden had told him that his (Hall's) wife was seriously ill. He also swore that Gooden later informed him that Judge Granby Hillyer had ordered the jurors locked up without food till they were ready to agree to a verdict.

This affidavit was used by Hawkins and Clark when applying for a new trial for Lawson and also in connection with a petition whereby a supersedeas was secured from the Supreme Court. Hall has made another affidavit, stating that he was bribed to make his previous statement.

As was anticipated in last week's "Coal Age," R. W. Coates, a detective employed by the United Mine Workers of America, was arrested on a body attachment issued by the military court of inquiry investigating charges against National Guard officials. His attorney, C. E. Friend, started on a motorcycle to the West Side court in Denver for a writ of habeas corpus.

#### John D. Rockefeller, Jr., Visits Mines in Colorado

John D. Rockefeller, Jr., is making an inspection of the coal mines in Colorado in accordance with his promise to Mother Jones on the occasion of the sitting of the Industrial Relations Commission in New York City, Jan. 27. He made his appearance quite unexpectedly Sept. 20. He will spend at least two weeks in the state and make a thorough investigation of working conditions.

There has been some talk that the officials of the United Mine Workers will take advantage of Rockefeller's visit to arrest him for his alleged responsibility for the Ludlow battle, and that President J. F. Welborn of the Colorado Fuel and Iron Co., President David W. Brown of the Rocky Mountain Fuel Co. and President John C. Osgood of the Victor-American Fuel Co. would also be placed under arrest.

In fact it was stated by President John McLennan of the Colorado district that A. M. Belcher, chief counsel of the United Mine Workers of America, would arrive in Colorado Sept. 21, having such arrests as the main purpose of his visit. The miners, according to William Diamond, purposed to lay the information before Attorney-General Farrar not later than Sept. 22. If this failed the public was to be informed as to the evidence submitted, so that it could judge of the justice of the miners in demanding that action be taken. However, at present writing none of the actions threatened have been put in operation.

John D. Rockefeller, Jr., on Sept. 20 visited the scene of the Ludlow battle and the villages Berwind and Tabasco. He talked with the miners and interviewed their wives about working and living conditions. He also made suggestions for improvements.

At noon he lunched at the miners' boarding house with Tom Davis, the superintendent of the mine, who was clad in his blue overalls. In the afternoon he visited the Tabasco school and the improvement work done to employ idle miners. A steep hillside had been graded to make a playground. Mr. Rockefeller addressed the scholars and later visited more houses and had a long talk with Dan Morelli, a coal digger who has been elected to represent the miners of Berwind in conferences with the officials of the fuel company.

On the following day Mr. Rockefeller visited Segundo and Frederick and the "stone-wall" road recently erected with Rockefeller Foundation funds. In the afternoon he went in the mines and dug some coal, meeting Archie Dennison, the head of the grievance committee of the Frederick mine at Valdez. Dennison assured the visitor that the meetings of the committee with the higher officials had removed many causes of complaint with minor officers of the company. On Sept. 22, the Sopris School was visited, where one of the children gave Rockefeller a course in banking and finance.

There is a rumor that James J. Hill is about to purchase the Rockefeller holdings in the Colorado Fuel and Iron Co. The visit of Mr. Rockefeller to the mine and the denial of the New York office seem to discredit this report effectually.

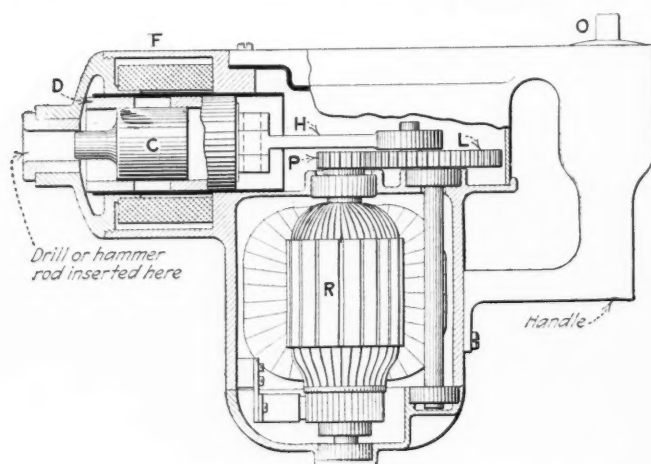
About 3,500 miners from two collieries in the Cardiff district, South Wales, recently went on strike because nonunion men were being employed in the mines. They took this action despite the fact that the nation was suffering for lack of coal and had declared an embargo on all foreign shipments, not allowing coal to be shipped even to allies. Their action is so reprehensible that the strike is not likely to spread.

## New Apparatus and Equipment

### New Electric Hammer Drill

The Western Electric Co. has recently placed on the market a line of electric hammer drills that may be operated at small cost from any convenient light-socket. A man equipped with one of these drills may be expected to do six times as much work as could be done by hand, while in some classes of work even greater speed can be attained. A man with a hammer or small sledge strikes from 50 to 80 blows per minute, while the electric drill strikes from 1,400 to 4,000.

The principle upon which this hammer works is as simple as it is effective. The main parts of the ma-



CROSS-SECTION OF THE DRILL SHOWING THE ARRANGEMENT OF PARTS

chine are the motor, a drill or hammer, and the magnetic clutch plunger. The motor *R* in the accompanying drawing transmits motion through the hardened gears *P* and *L*, and the connecting-rod *H*, to the cylindrical sleeve *D*, which has two relatively thick end sections with a thin center section connecting them. This center section is as thin as is consistent with mechanical strength.

The plunger *C*, which delivers the blow to the drill, lies loosely within this cylinder and is not mechanically connected to it or to any other part of the mechanism. Outside of the sleeve is placed the magnet coil *F*. This coil is stationary, the sleeve moving backward and forward within it. The coil is in series with the motor, and the current traversing it is always steady and in the same direction.

As soon as the circuit is switched on (by the button *O* conveniently arranged on the handle) a magnetic circuit is created with the thick sections of the sleeve as the poles and the plunger as the armature. As the sleeve is oscillated back and forth by the motor, the effect is that of moving the polepieces of the magnet back and forth, and the plunger clutched across the poles moves similarly, transferring its energy to the drill when the two parts come in contact, which takes place near the end of the stroke. The plunger is slightly longer than the thin section of the sleeve, which gives it a certain amount of over-

travel and an elasticity of connection that entirely remove the stress and jar of the blow from the machine.

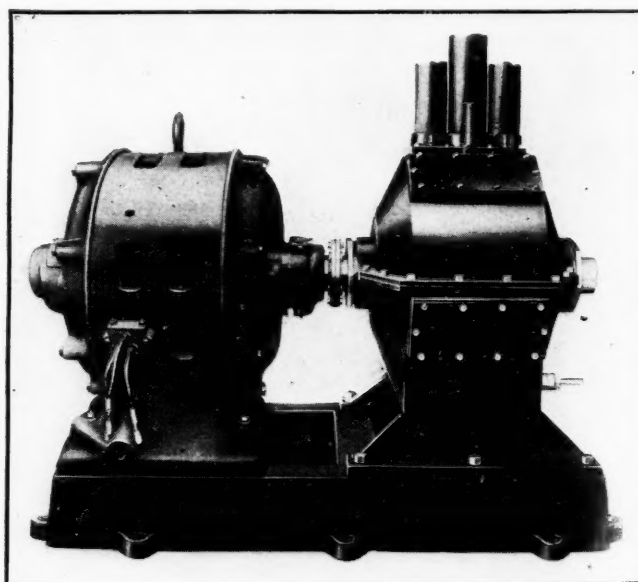
The motor is series-wound and the gears are of oil-hardened special gear steel, while ball bearings are employed throughout.

A number of these drills have for some time been in successful use in coal mines, where they have been employed not only for taking down top and lifting bottom, but also for drilling the coal face preparatory to shooting.

### Jackson Rotary Air Compressor

A new type of rotary compressor, the invention of H. O. Jackson, is being perfected by the Jackson Compressor Co., 1130 Twelfth St., Denver, Colo. As yet the machine has been built only in relatively small sizes, and the company is taking no commercial orders.

As shown in the accompanying photograph, this compressor is small and compact. One unit, which has just been completed and mounted on an ordinary automobile truck especially equipped with a silent chain-drive from the engine shaft for purposes of demonstration, has interior cylinder dimensions of  $7\frac{1}{2} \times 8\frac{1}{4}$  in. The weight of the machine, without motor, is 345 lb. Running at



JACKSON COMPRESSOR DIRECT CONNECTED TO A MOTOR

1,000 r.p.m. this machine compresses 180 cu.ft. of free air per minute to 100-lb. gage-pressure in a single stage.

Within the cylinder five wings or blades move with an opening and closing motion from an eccentric on the single central shaft. The space between these blades is thus opened allowing the admission of free air and then closed, compressing and expelling it. The volume of each compartment when at its maximum is more than  $\frac{1}{5}$  of the volume of the entire cylinder, so that each revolution of the shaft with the accompanying five compressions handles



considerably more free air than the normal capacity of the cylinder.

This machine is quite silent in operation. It requires no foundation, and there are no packed joints, all contact surfaces being ground to a tight metallic fit. Since the intake and expulsion of air is continuous, no pulsations are perceptible in either the suction or exhaust. The machine is highly portable and has been experimentally operated while hanging freely in the air suspended by an ordinary rope.

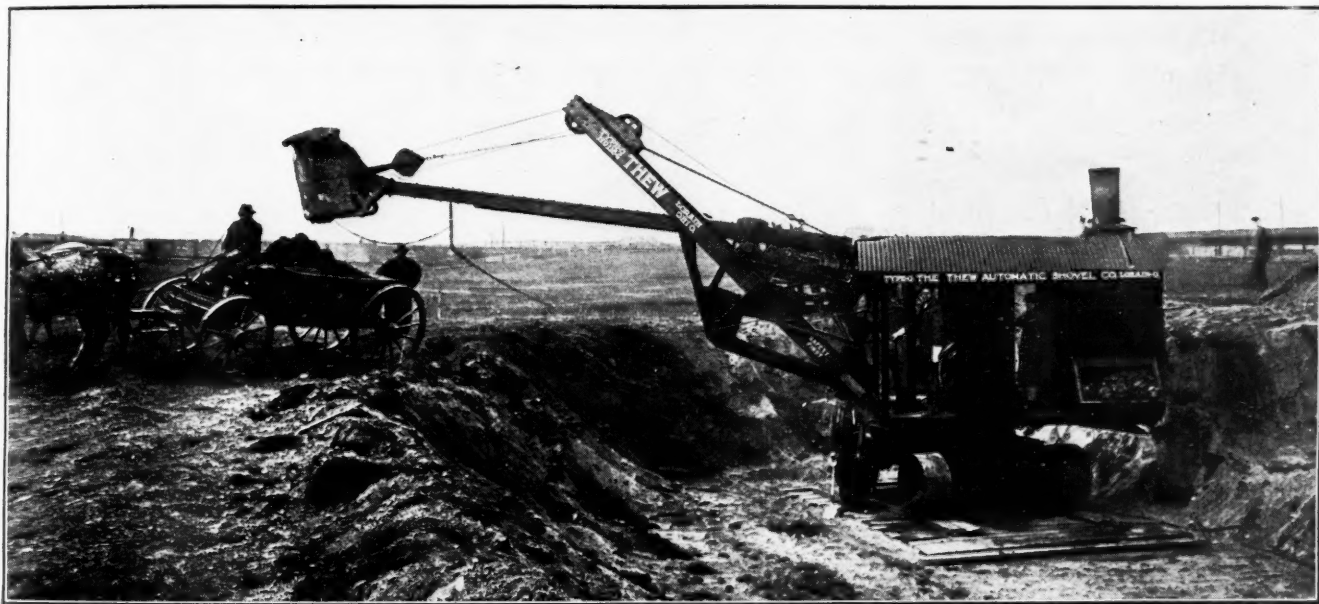
The two outer pipes shown in the illustration admit free air to two manifolds encircling the cylinder, permitting the entrance of air to each of the five compartments through poppet valves. The middle pipe shown is the discharge line. It also connects with each of the five compart-

## Combination Boom Shovel

A new type of steam shovel, known as the Thew combination boom machine, has recently been placed on the market by the Thew Automatic Shovel Co., of Lorain, Ohio.

In it the Thew horizontal crowding motion is combined with a shipper-shaft mechanism of new design. Thus are secured the advantages of the horizontal crowd for shallow cuts, together with a jackshaft crowding motion which is highly advantageous in deep work and digging trenches or where extended dumping radius or high clearance lift is desirable.

The two crowding mechanisms are independent and noninterfering. Both are operated from the same crowd-



COMBINATION SHOVEL WITH LONG BOOM AFFORDING LARGE DUMPING RADIUS

ments through a manifold and valves. All three of the above-mentioned manifolds are within the water-jacket space surrounding the cylinder.

Lubrication is provided through a drilled hole in the shaft. Oil of a high flashpoint is admitted from an air-pressure reservoir attached to the right-hand side below the shaft. Excess oil collects and passes through the exhaust manifold with the compressed air into a small pipe shown in the illustration and thus back to the reservoir. The oil in the reservoir being under pressure resumes its circuit again, regulation of the amount being effected by a simple valve in the feed line. The lubrication is thus continuous.

This compressor will run successfully in either direction of rotation, but it is designed to operate preferably in one direction only. It may be operated with equal efficiency as either a compressor or an exhauster. Experiments with the machine in the latter service have shown that it will maintain a vacuum of  $22\frac{5}{8}$  in. of mercury at Denver, which is a good showing considering the altitude.

The manufacturers of this machine state that the compressors will weigh approximately one-tenth what piston-displacement machines of corresponding capacities weigh. The strong points claimed for these machines are their lightness, portability and simplicity.

ing engine which is merely changed in position. When using the horizontal crowd, the long dipper handle must be removed, and when the shipper-shaft crowd is in use, the short dipper arm is chained to the boom structure after removing the dipper. All changes necessary can be made in less than three hours, while the same dipper may be used with either crowding mechanism.

The long dipper handle used in connection with the jackshaft crowding mechanism combines lightness and strength. It is made of a single piece of wood, 8 in. square, armored with steel plate and equipped on the under side with a steel rack. Dipper arms may be procured in numerous lengths to suit the requirements of different kinds of work, depending on the depth which is to be excavated, the extent of dumping radius or height of clearance lift desired. A dipper with a 27-ft. stick can dig a trench to 16 ft. below the ground on which the shovel stands, while a dipper handle of this size makes it possible to dump material within a radius of 31 ft., with a clearance of 14 ft.

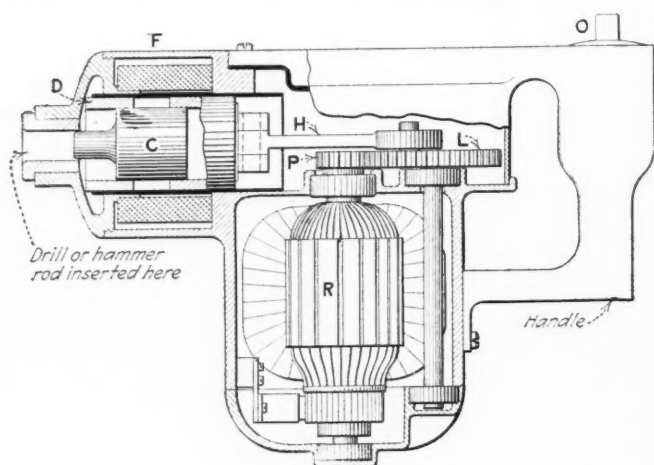
This combination boom shovel will handle practically any class of work encountered. Either kind of crowding motion may be incorporated when the machine is purchased, the other mechanism being procured and added at a later date as occasion may require. A number of these machines have been in use for several months.

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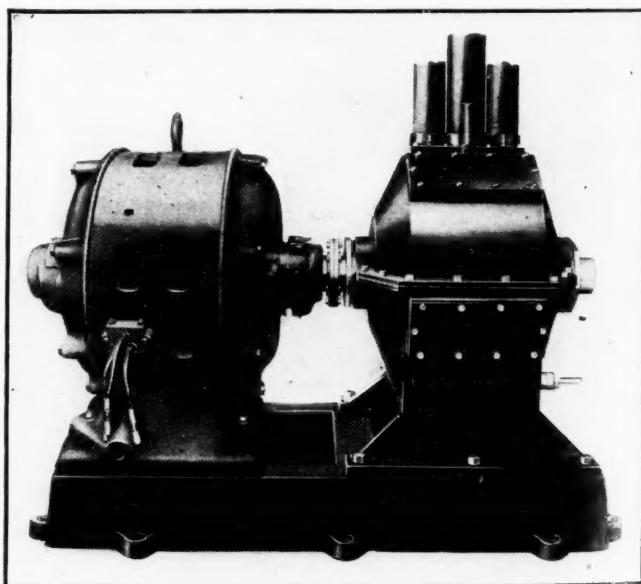
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### Jackson Rotary Air Compressor

A new type of rotary compressor, the invention of H. O. Jackson, is being perfected by the Jackson Compressor Co., 1130 Twelfth St., Denver, Colo. As yet the machine has been built only in relatively small sizes, and the company is taking no commercial orders.

As shown in the accompanying photograph, this compressor is small and compact. One unit, which has just been completed and mounted on an ordinary automobile truck especially equipped with a silent chain-drive from the engine shaft for purposes of demonstration, has interior cylinder dimensions of  $7\frac{1}{2} \times 8\frac{1}{4}$  in. The weight of the machine, without motor, is 345 lb. Running at



JACKSON COMPRESSOR DIRECT CONNECTED TO A MOTOR

1,000 r.p.m. this machine compresses 180 cu.ft. of free air per minute to 100-lb. gage-pressure in a single stage.

Within the cylinder five wings or blades move with an opening and closing motion from an eccentric on the single central shaft. The space between these blades is thus opened allowing the admission of free air and then closed, compressing and expelling it. The volume of each compartment when at its maximum is more than  $\frac{1}{5}$  of the volume of the entire cylinder, so that each revolution of the shaft with the accompanying five compressions handles



considerably more free air than the normal capacity of the cylinder.

This machine is quite silent in operation. It requires no foundation, and there are no packed joints, all contact surfaces being ground to a tight metallic fit. Since the intake and expulsion of air is continuous, no pulsations are perceptible in either the suction or exhaust. The machine is highly portable and has been experimentally operated while hanging freely in the air suspended by an ordinary rope.

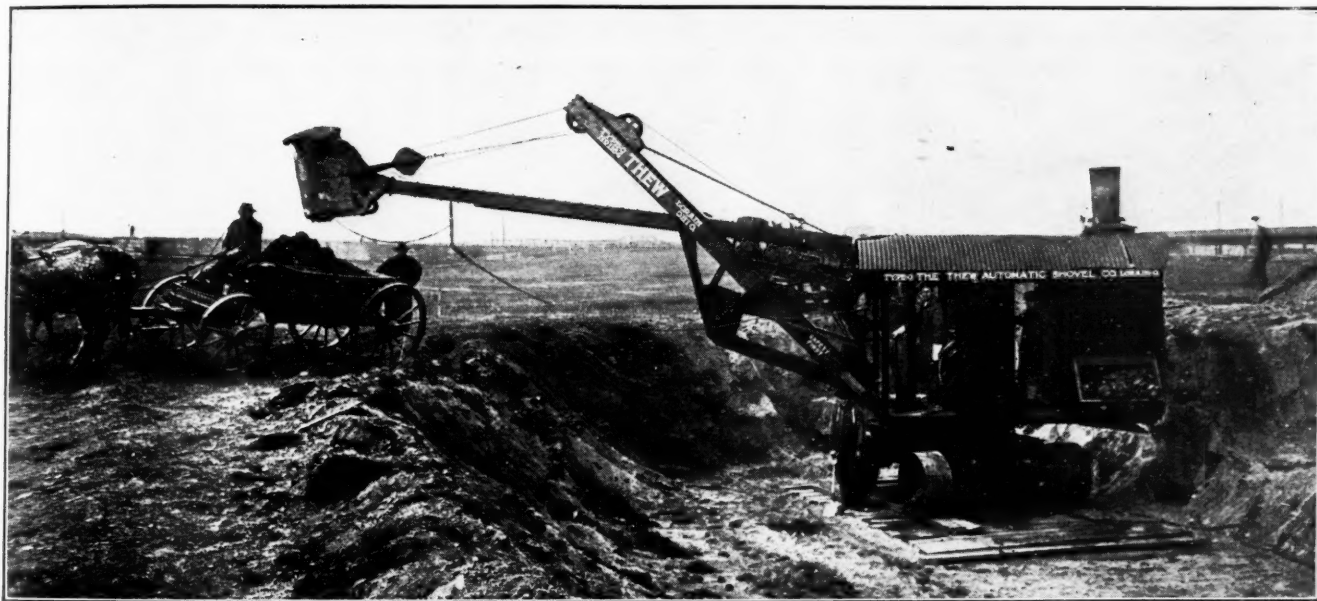
The two outer pipes shown in the illustration admit free air to two manifolds encircling the cylinder, permitting the entrance of air to each of the five compartments through poppet valves. The middle pipe shown is the discharge line. It also connects with each of the five compart-

## Combination Boom Shovel

A new type of steam shovel, known as the Thew combination boom machine, has recently been placed on the market by the Thew Automatic Shovel Co., of Lorain, Ohio.

In it the Thew horizontal crowding motion is combined with a shipper-shaft mechanism of new design. Thus are secured the advantages of the horizontal crowd for shallow cuts, together with a jackshaft crowding motion which is highly advantageous in deep work and digging trenches or where extended dumping radius or high clearance lift is desirable.

The two crowding mechanisms are independent and noninterfering. Both are operated from the same crowd-



COMBINATION SHOVEL WITH LONG BOOM AFFORDING LARGE DUMPING RADIUS

ments through a manifold and valves. All three of the above-mentioned manifolds are within the water-jacket space surrounding the cylinder.

Lubrication is provided through a drilled hole in the shaft. Oil of a high flashpoint is admitted from an air-pressure reservoir attached to the right-hand side below the shaft. Excess oil collects and passes through the exhaust manifold with the compressed air into a small pipe shown in the illustration and thus back to the reservoir. The oil in the reservoir being under pressure resumes its circuit again, regulation of the amount being effected by a simple valve in the feed line. The lubrication is thus continuous.

This compressor will run successfully in either direction of rotation, but it is designed to operate preferably in one direction only. It may be operated with equal efficiency as either a compressor or an exhaustor. Experiments with the machine in the latter service have shown that it will maintain a vacuum of  $22\frac{5}{8}$  in. of mercury at Denver, which is a good showing considering the altitude.

The manufacturers of this machine state that the compressors will weigh approximately one-tenth what piston-displacement machines of corresponding capacities weigh. The strong points claimed for these machines are their lightness, portability and simplicity.

ing engine which is merely changed in position. When using the horizontal crowd, the long dipper handle must be removed, and when the shipper-shaft crowd is in use, the short dipper arm is chained to the boom structure after removing the dipper. All changes necessary can be made in less than three hours, while the same dipper may be used with either crowding mechanism.

The long dipper handle used in connection with the jackshaft crowding mechanism combines lightness and strength. It is made of a single piece of wood, 8 in. square, armored with steel plate and equipped on the under side with a steel rack. Dipper arms may be procured in numerous lengths to suit the requirements of different kinds of work, depending on the depth which is to be excavated, the extent of dumping radius or height of clearance lift desired. A dipper with a 27-ft. stick can dig a trench to 16 ft. below the ground on which the shovel stands, while a dipper handle of this size makes it possible to dump material within a radius of 31 ft., with a clearance of 14 ft.

This combination boom shovel will handle practically any class of work encountered. Either kind of crowding motion may be incorporated when the machine is purchased, the other mechanism being procured and added at a later date as occasion may require. A number of these machines have been in use for several months.

## Editorials

### Many Mining Machines Are Patented

Of 22 patents pertaining directly or indirectly to the coal-producing industry granted by the Patent Office in the period between July 27 and Aug. 27, no less than five were for mining machines, while nine were for mechanical stokers, pulverized-coal burners, smoke consumers and like appliances.

It might be inferred from the foregoing that those interested in coal production and consumption were lazy and wished to avoid so far as possible the manual labor of mining and burning coal. While we might agree with the latter proposition, we must take strong exception to the former. Man-power is about the most expensive energy purchasable. We pay a laborer, say, \$2 for 9 hr. work. This man is capable of exerting continuously about one-eighth of a horsepower. In other words, we have secured  $1\frac{1}{8}$  hp.-hr. for \$2, or we pay about \$1.78 for man-power per horsepower-hour.

In marked contrast to this high cost of energy is the cost of current delivered to the motor of a mining machine which should not exceed 2 to  $2\frac{1}{2}$ ¢. per horsepower-hour.

It is the realization of this discrepancy between the cost of power developed by man and that developed by a steam engine, for instance, that is driving the coal industry, as well as all others, to employ machinery wherever such employment is possible. Furthermore, it is frequently the case—as in undercutting, for example—that the machine does the work better; that is, it cuts deeper and affords less resultant fine coal than when mining is done by hand.

It is probable that most operations that may be performed by machinery require a greater expenditure of power than would the same operations performed by hand; nevertheless it has become almost axiomatic that it is economical to supplant manual power by machinery wherever possible. Consequently inventors are continually striving to perfect mining machines, stokers and other power-driven devices that will do away with the employment of muscular energy.

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### "A Hole in the Ground and a Hencoop Over It"

It is said that this pleasantry is still a common description by anthracite men of a bituminous mine, and it is true that there are many mine openings in the soft-coal regions which it does not much belie. It is these small concerns which play havoc with the industry, not so much because they produce much coal, nor because in any large degree they undersell the market in feeble attempts to keep in business, nor because they often fail to pay union wages, but because they form a sort of apprenticeship to the coal broker who desires to enter the operating end of the profession.

Any business which appears difficult and seems to require special knowledge is by that fact protected from general competition. Everyone realizes that it is a place for "insiders" only, and they leave it severely alone unless they feel sure that they can secure the services of an expert who is technically and morally worthy of their confidence. Even then they enter without plunging. Most of the big industries of the country are extended entirely from the inside, with the capital earned in the business.

Not so the coal industry. Anyone, it is generally thought, can dig a hole in the ground and cover it with a "hencoop." They soon learn that the work is one in which all can indeed engage, but in which profits are few. The corner grocery has the same fatal fascination, and for the same reason it is rarely successful. There are far too many grocers for their profit or for the advantage of the public, and in like manner there are too many coal men—so many in fact that they themselves, their employees and the public suffer.

Many are the coal sales agents who have entered the coal business and realized that while the hencoop was easily constructed it was not easy to escape from under it without considerable loss. In fact, in some districts jobber after jobber has tried his hand at operating and failed, and in those parts the mining of coal has proved a persistent source of loss. As in gold mining, more has been put into the ground than taken out. The only men who made money were the sheriff and county recorder.

Thus it is that the hope of the mine owners is in the elaboration of their plants and in the combination of manufacturing with coal mining. Moreover, the large operators are financially responsible and seek to guard their investments by coöperation. The smaller operator knows only two ways to make money—by reducing the wages of his men and by skimping his mining work. But the larger concern guards itself by introducing real economies, and in time will put more advanced products than coal upon the market.

In this connection it is interesting to note the new dye industry started by the Pearsite Co., in Cannel City, Ky., and largely financed by Col. H. P. Bope, of Pittsburgh, a vice-president of the Carnegie Steel Co. This, of course, is a business in which not many can enter, and Mr. Bope will utilize only cannel coal. But the kind of coal used will probably not be restricted to cannel, and there is a broad field related to dyes where many plants could engage.

The Pearsite Co., named after Arthur L. Pearse, an English engineer whose process will be used, will extract the dyes from oxidized cannel, the oxidation being performed in a furnace. The output will be about 5 tons per day. How much coal will be used in obtaining this product is not stated.

So long as the anthracite mine was a hole in the ground without much capital involved and the industry seemed to need neither brains nor financial resources, the



market was glutted and no one made money. In those days there was an abundance of little gouge holes in the anthracite region. Everywhere surface beds were being mined or partly mined and partly left and as much or even more capital was squandered in them than was ever made by their exploitation.

In the bituminous region the simpler methods are fast passing. Plants are far more complicated and the visitor is impressed with the technical skill required. But there are enough country banks with shaky drift mouths, wheezy cars and balky mules to induce everyone who can sell coal to enter the mining business. Only by advancing our methods or extending them into the manufacture of power or byproducts can the coal broker be convinced that the coal industry is too specialized a business for him to "butt in" without some previous training.

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### Trend of the Coke Industry

The erection of byproduct coke ovens is proceeding more rapidly now than at any time in the history of the byproduct process in the United States. The first retort-oven plant in the country began producing in May, 1893. At the close of 1900 there were only 1085 retort ovens in the United States, the production of coke in that year having been 1,075,727 net tons. New construction proceeded at the rate of a few hundred ovens a year, bringing the total number at the close of 1913 up to 5688.

During this time there was a decidedly rapid expansion in the iron and steel industry, whereby the increased coke production was readily absorbed, and the beehive-oven industry did not suffer seriously, though of course it did not show any expanding tendency. The maximum production of beehive coke was reached in 1907 (35,171,665 net tons), while the maximum number of beehive ovens reported by the Geological Survey was 100,362, for the close of 1910. While occasionally a few beehive ovens are built, the number that work out their coal from year to year and are accordingly abandoned somewhat predominates, so that for the end of 1914 only 93,946 beehive ovens were reported.

In the past year or two the erection of retort ovens has been proceeding much more rapidly than before, while blast-furnace construction has been much slower, and thus the iron industry has not expanded with sufficient rapidity to afford a consumptive demand for all the coke that can be produced. The Connellsville coke market has distinctly reflected this situation.

In December steel conditions began to improve, and up to this date there has been continued increase in steel demand and prices. The production of pig iron by merchant furnaces increased more moderately than did the output of steel, but still it increased materially, and early in July pig-iron prices began to rise, the advance to date amounting to an average of fully \$1.25 per ton.

Estimates of the capacity of retort ovens vary widely. A claim is made, for instance, that the best type of retort oven can produce at least 13 tons of coke per charge and can coke a charge in less than 24 hr., or more than 4000 tons a year. On the other hand, an estimate based on the showing for the year 1913 would indicate that if the retorts then in operation had operated steadily throughout the year they would have produced about

2700 tons per retort. Using this estimate, noting that the Geological Survey reported 5809 retorts completed at the end of 1914 and adding the 1000 retorts now being built, it is a conservative statement that the industry is making for a capacity of 19,000,000 tons of byproduct coke a year. On the basis of the 1913 production, with allowance for the fact that the beehive ovens ran at least 10 to 15 per cent. below their capacity in that year, the beehive capacity is about 38,000,000 tons, making a total coking capacity of 57,000,000 net tons.

It is possible to make a close estimate of the probable coke demand. In the past five years the production of coke in net tons averaged 48.3 per cent. more than the number of gross tons of pig iron produced. Coke is used in limited quantities outside the iron industry, but the fluctuations could not affect the calculation materially. The present production of pig iron is about 32,000,000 tons a year, which would indicate a current consumption of coke of 47,500,000 tons annually. But there is a fairly well accepted estimate that the actual capacity of the blast furnaces of America is about 35,000,000 tons, thus suggesting a maximum possible coke consumption of 52,000,000 tons. Against this we have a conservative estimate of 57,000,000 tons for the coke capacity, and if the retorts recently built and those under construction approximate the production claimed possible, the coke capacity is well in excess of 57,000,000 tons.

Thus the analysis of the physical situation as to capacity and demand harmonizes completely with the coke-market situation.

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### Nearing the Century Mark

"Uncle" James Farrar celebrated his ninety-eighth birthday last week at the home of his daughter, Miss Lillian Pledger, in Birmingham, Ala. He followed his vocation as a coal miner until he was over 75.

It is now a well-recognized fact that miners are healthy and hearty, living to a good old age. Only those who are interested in some way in its disproof will venture to deny that fact. A book by Joseph W. Hays, entitled "Combustion and Smokeless Furnaces," published in 1906, states that "coal mining, barring the physical dangers attending it, is a healthful occupation and the coal miner is usually longlived. Post-mortem examinations have developed the fact that the lungs of the coal miner may be absolutely black with coal dust inhaled during many years and these organs be otherwise in a sound and normal condition."

As far as the United States is concerned it may be said that coal mining is without any occupational disease, unless it be miner's asthma. There are no healthier men anywhere than in the mining industry. Stooped they may occasionally be, owing to the low headroom in which they work and the cramped position in which they are always compelled to labor even if in thick beds of coal. Their carriage may also be bad, due to the "uneven going" underground. Moreover, the miners are not quite as active on a sticky hot day as men whose work normally subjects them to the heat of the sun. But, as has often been proved, these outward marks of their profession do not signify any real lack of vigor any more than the rolling gait of a sailor, which connotes habit and not feebleness, shows a lack of health on his part.

## Sociological Department

### Victor-American Fuel Co. First-Aid Meet

By C. S. TAYLOR\*

About four thousand people witnessed the first-aid contest of the Victor-American Fuel Co. at Walsenburg on Aug. 28. Governor Carlson was unable to be present and Lieutenant-Governor Harper took his place, presenting the silver cup and medal. Three members of the Industrial Commission were present. The contest took place in an arena provided

**Two-Man Event**—Explosion of blasting cap. Right-hand lacerated in the palm and the skin of all four fingers torn by the explosion. Bright blood spurts from the palm and the patient has a severe shock. Dress and carry 50 ft. without stretcher.

**Full-Team Event**—Victim rolled between car and roof. Simple fracture of the right thigh at the middle third; simple fracture of the left arm at the middle third and of both bones of the left forearm at the upper third. Dress and carry 100 ft. on a stretcher.

The contest closed with Chandler first with 98.1 points, Ravenswood second with 95.8 points. This is the second time



SCENES IN THE WALSENBURG FIRST-AID CONTEST OF THE VICTOR-AMERICAN FUEL CO.  
Winning Team and Officials



Five Teams at Work

with a grandstand from which at least 500 people, comfortably seated, could see the contestants. The grandstand was trimmed with patriotic folds of red, white and blue. After the events dinner was served at the Klein Hotel. E. P. Linski announced the events. The work in general was considered of more than ordinary merit. The program was as follows:

**One-Man Event**—Patient struck by pick. Punctured wound on the inner side of the left thigh; severe hemorrhage.

Chandler has won the first prize. The judges were J. R. Hall and R. M. Shea, of the United States Army, and J. W. Ames, of Fort Logan. Others of note who were there were Dr. John R. Espy, of Trinidad, and F. W. Whiteside, chief engineer of the Victor-American Fuel Co., who had charge of the contest and its business arrangements. Pathé took moving pictures of the field work. S. M. Thompson, representing the Mines Safety Appliance Co., of Pittsburgh, presented the captain of the winning team with a Koehler safety lamp.



A TEAM CARRYING REGULATION STRETCHER

Dress and carry without stretcher 50 ft. to the mouth of the drift.

**Full-Team Event**—Rockfall. Compound fracture of both bones of the left leg in middle third; compound fracture first phalanx of the left thumb; compound fracture of the right side of the lower jaw. Dress and carry 50 ft. on a stretcher.

**Full-Team Event**—Gas Explosion. Burns of first and second degree of face, neck, hands and forearms. Dress and carry 50 ft. without stretcher.

\*816 East Colfax St., Denver, Colo.

**State-Wide Meet in Indiana**—A state-wide first-aid meet is to be held at Bicknell, Knox County, Ind., on Saturday, Oct. 30, at 1:30 p.m. It will be under the joint auspices of the United Mine Workers of America, the operators of Knox County, the Bureau of Mines and the American Mine Safety Association. The expenses and medals are to be furnished by local unions and operators of Knox County. In the evening entertainment will be provided.

**Labor Day Meet at Boulder**—A first-aid contest was held at Boulder, Colo., as part of the program in a Labor Day picnic and fair. Six teams representing coal mines in Boulder County were present and competed. A beautiful silver cup was awarded to the team from the Simpson mine under the captaincy of C. E. Dollar. Second place was secured by a team captained by Robert Pendleton, of Lafayette, Colo. The award was based solely upon skill and precision and not on the time consumed in the work. The judges were Drs. F. H. Farrington, Clay Griffin and Carbon Gillespie.

**The Department of Mines of West Virginia** is issuing a typewritten list of the persons killed inside and outside of coal mines of West Virginia during the month of August, 1915. There were 35 men killed in all—20 Americans and 15 foreigners. Of these, 34 fatal accidents occurred inside and one outside the mines. The statement gives a detailed account of the location and cause of each accident, with the name, nationality and occupation of the victim. The department requests that it be posted in a conspicuous place, with intention doubtless of warning other men of like dangers. However, descriptions of so many accidents in one bulletin are apt to fail in making a direct appeal, such as would be made by one fatality fully described and with its lesson duly accentuated. Still, a long record without comment conveys its message.



## Discussion by Readers

### Mining Machinery--Belting

Letter No. 4—Referring to George N. Lantz's letter, No. 3, *Coal Age*, Sept. 11, p. 431, on belt lacing, I should say that there are three points in which this lacing is open to criticism:

First, it is not symmetrical. It would be better to have *c* and *d* in the same straight line with *a* and *b*, not only for the sake of appearance but for even running as well.

Second, the lacing takes too big a jump from 16 to 17 and is not at its proper angle. The effect of this would be to pull the ends slightly out of alignment.

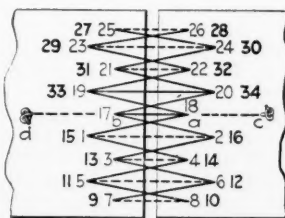
Third, it is always advisable, wherever possible, to make the same number of passes of the lacing through each hole. In his joint Mr. Lantz makes two passes through most of the holes, but through *a* and 17 he makes three passes.

In the accompanying figure I have shown a method of lacing such a joint that overcomes the objectionable points I have mentioned. To follow the path of the lace, start down through *c*, up through *a*, then to 1, and finally pass from 34 down through *b* and up through *d* and tie.

N. G. NEAR.

New York City.

[This matter of belt lacing has been interesting and instructive. Let some one suggest other points of similar interest in mining machinery.—Editor.]



AN IMPROVED BELT-LACING

employees shall receive sufficient instruction and training to make them of service in time of need. Such a requirement might well be incorporated in the state mining laws.

With a view to greater protection of life and property, most mining laws require all mine officials to pass an examination and hold a certificate of competency before they can act in the capacity of mine foreman, assistant mine foreman or fireboss. I would ask why the mine laws should not require that all miners and mine employees should possess some training in first-aid work before being permitted to work in the mines.

It may be urged that a knowledge of first-aid work on the part of every employee will not eliminate mine accidents; but while this is true, I claim that the possession of such knowledge will often save life and reduce the later effects of the accident that otherwise would be inevitable. The purpose of such a provision in mining law would not be so much to reduce the number of accidents as to lessen their effect.

JOHN ROSE,

Former District Mine Inspector.

Dayton, Tenn.

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### Compensation in Relation to Constitutional Rights

In a letter published in *Coal Age*, July 3, p. 25, A. M. Iner makes some interesting remarks on Pennsylvania's recently enacted Compensation Law, and expresses his surprise that so important a piece of legislation should have brought practically no comment in the pages of *Coal Age*, either editorially or otherwise. Further, this correspondent points out what he considers certain bad features of the act, and it must be admitted at the start that if one-half of the fears expressed by Mr. Iner are realized the future holds almost as little encouragement under the Compensation Act as the past held under the old Liability Law, particularly for the injured employee or the wife and children bereaved by the accident.

One readily shares Mr. Iner's surprise that so little has recently been published regarding legislation intended to mean so much to the mining fraternity as well as to other workers in hazardous occupations of the state. But, speaking personally, unlike his, my surprise is an agreeable one, since the quiet acceptance of this "class legislation" by the men of the mining industry indicates a readiness to let the future decide its good and bad features. The complacency of mining men, who as a class are invariably arrayed against anything they conceive to be inimical to their individual or general interests, indicates a satisfaction in the accomplishment at last of a duty long deferred by the state. Most mining men, it would seem, are willing, for the real test of this enactment, to be its practical application. I believe the majority of us are optimistic enough to think that this new Workman's Compensation Law will eventually be proven of inestimable benefit to the state at large, as well as to those men

### Need of First-Aid Instruction

Letter No. 2—In his remarks on the need of first-aid instruction, published in *Coal Age*, Aug. 14, p. 268, James T. Reynolds concurs in all previous suggestions that first-aid instruction should be given more generally to all mine employees. But Mr. Reynolds, in his last paragraph, advocates that "the mining laws of every state should compel all operators to maintain at their plant at least a few trained men who are competent to give first-aid treatment in case of accident."

I agree with everything that Mr. Reynolds had previously said, but think that this last statement should be broadened so that first-aid training will apply to the entire mine force, to the extent that all employees in mines should have at least sufficient knowledge and training to enable them to do the necessary things to relieve one injured in an accident and, if possible, to save life. If it is good to have a few trained men at each mine, it is surely better to have a larger number of men who possess the necessary knowledge and training to make them useful in case of accident. I am of the opinion that before first-aid work can become a thoroughly effective agency in mining, all mine operators and superintendents must maintain training schools at their mines, where all mine

so unfortunate as to come under its provisions and to the widows and children for whom it provides.

In the article to which I have referred the author evidently fears that the miners of this state have "asked for bread and been given a stone." He seems to think that they have sought alleviation of one of the chief burdens of the industry and it has been granted at the sacrifice of certain inalienable, individual and constitutional rights. This, by the way, is one of the antique stock arguments that have ever been used against an equitable, fair, business-like and humane compensation law in this and other countries.

It may be true, as Mr. Iner avers, that this particular act robs the workman and, incidentally, the workman's wife and little ones, or the mother depending on his earnings, of certain individual rights. So does temperance reform rob the drunkard of the means of debasing himself and bringing misery on his family. The cases are analogous in some respects unnecessary to consider here. The act does indeed rob the workman and his family, but of what? It removes the dread of poverty, starvation and pauperism, which were formerly the inevitable result when a workman was deprived, by accident beyond his control, of his ability to labor. Regarding that phase of the question I will not attempt to argue, since, with Mr. Iner, I lament the fact that I am merely a mining man and not an expert on the constitutional rights of the miner to suffer needlessly. However, it does not require a constitutional lawyer to decide which would mean the most to a widow left with a family of small children after the death of her husband—his constitutional rights or 50 per cent. of his wages for five hundred weeks. I have my own opinion as to which of these will go farther toward paying the grocer and butcher and keep the family together in the home, after the father has been removed by death.

Mr. Iner truthfully remarks that, under the present law, an injured workman possesses the right to seek redress through the process of common law where he would stand some chance of proving his claim. But if Mr. Iner is as practical a mining man as his article indicates he will certainly have seen what has convinced me, as it has thousands of others interested in the matter, that the chance of securing anything substantial through the processes of law are very slim indeed. We all know that under the old Liability Law, which remains in effect in Pennsylvania until January, 1916, the injured miner or his widow and children if he is killed at his work have a chance of seeking redress in the courts. But statistics, as well as observation, compel the assertion that the "chance" is about all they will get. The records show that for every miner injured through no fault of his own and awarded an adequate verdict at the hands of the court, there are dozens who should have the same but have not. And those who gained their case received practically nothing, except in rare instances, as the award when made went chiefly to enrich the lawyers.

To refer again to cold-blooded statistics, it has been shown that under the old Liability Law less than 40 per cent. of the money paid by employers in the United States went to the men, women and children for whose care and comfort it was intended. This of itself is pathetic, unbusinesslike and inhumane; but, what is worse, nearly one-half of that 40 per cent. went to the lawyers interested in the case.

The pernicious effect of such a system, which the new Compensation Law expects to replace, might be better understood by quoting from a pamphlet that I read before the West Virginia Coal Mining Institute, at Wheeling, some years ago. Statistics for that article advocating such compensatory laws were laboriously gathered from almost every Government in the world having an accurate tabulation of their several laws governing this matter. But lack of space prevents other than the following quotation taken from the records of a county in Pennsylvania:

The bad effects of such a system [the method of deciding and paying through the courts] can best be grasped when statistics of one county near here recorded in a given period 304 fatal accidents. Following this, 200 families were left dependent on the whims of courts and juries, and as a result 88 of said families received not one cent of compensation following the death of their breadwinner. Practically the entire 300 men killed were contributing, at the time of their death, to others besides themselves. Ninety-two families received funeral expenses only. Thus 180 of the 304 cases cited were left to bear the entire loss of income. Of the families remaining only 62, or approximately 20 per cent., secured through the courts more than \$500—a sum approximating a single year's labor wage of the lowest-paid workman killed.

Surely an equally burdened number of dependents in the future will not grieve over being deprived of any rights at law that gave others in a like predicament such munificent results. Surely no compensation act conceived by civilized men (outside of the legal fraternity) can hold any worse prospect than that.

SIM. C. REYNOLDS.

Houston, Penn.

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## Handling Explosives in Mines

*Letter No. 1*—In considering the various suggestions made in respect to increasing the safety of mining operations and the prevention, as far as possible, of explosions in mines, there is no subject of greater importance than that of handling explosives in the mine. After a long and varied experience in the storage, use and handling of explosives I am led to offer the following suggestions, in the hope that they may be the means of avoiding some of the accidents that are due to carelessness or a lack of knowledge on the part of many whose duty it is to use this dangerous material in their daily work:

Miners should be educated in the storage and, particularly, in the use and handling of explosives. They should not only be given a copy of rules, but should be instructed verbally in this regard. The United States Coal and Coke Co., at Gary is very strict in its observance of these precautions. Each miner is supplied with a copy of the rules, printed in his own language, and given verbal instructions by the company inspector, as well as by the mine foreman and his assistant. If he cannot read he is questioned on the rules until he becomes thoroughly acquainted with what is required.

The following description of the elaborate system employed by the Horden Collieries Coal Co., of England, in respect to the storage, handling and use of the explosives used in their mines will be of interest:

The company's magazine is located 3000 ft. from the tippie. The building measures 12x12 ft., and is 7½ ft. high inside. The walls are of concrete and 8 in. thick. In one corner is a large cupboard for the storage of detonators, while the remaining space is occupied by explosives. The floor and partitions are of wood and wooden



pegs are used instead of nails. The locks, hinges and other fastenings are of brass. There is an 8-ft. fence around the building and no one is permitted to enter this inclosure except the attendant, who is supplied with a locked safety lamp and wears rubber shoes.

There is an excellent system employed in distributing explosives to the miners. Each man is supplied with a metallic canister stamped with his check number. Upon reaching the outer door of the magazine, he calls out his number and receives his canister from the attendant, a record of the amount of powder in the canister having been previously made in a book kept for that purpose. At the end of the shift the miner returns his canister to the magazine, when the contents remaining in the can are noted and the quantity used is charged to the miner. The form of this book is as follows:

Date	Check Number	Name	Weight of Powder (Oz.)		
			Issued	Returned	Used

The detonators are never handled by the miners; they are carried into the mine in locked tin boxes by the shotfirers or deputy overmen. Each shotfirer has a number, and this number is stamped on the box containing the detonators in his charge. A record is kept of these detonators in a book similar to that used for explosives. The book form is as follows:

Date	Box No.	Name	Number of Detonators			
			Issued	Returned	Used	Bad

In this mine the coal is undercut by compressed-air machines and the holes drilled by air drills. The mine is divided into separate districts, each district having a deputy overman or shotfirer in charge and one man to drill the holes. The shotfirer carries with him a wooden tamping rod, having at one end a copper scraper. His duty is to clean, charge and tamp all holes, using only clay for the tamping.

The shots are fired with an electric battery, and not less than 50 ft. of cable is allowed to be used in this work. Only one shot is fired at a time. After firing a shot, the shotfirer must disconnect the cable and take the key from the battery, before proceeding to make the connection for firing the next shot. I may say that accidents from explosives and the occurrence of blownout shots in this system of firing are a thing of the past. I am convinced that it only requires a thorough system of storing, handling and using explosives, and a safe and reliable method of firing the shots, to eliminate completely the occurrence of accidents along this line. I hope to see others give their experience and suggestions.

Marytown, W. Va.

JAMES THIRTLE.

## Labor in Mining

*Letter No. 10*—The discussion in *Coal Age* in reference to the question of why strikes occur so frequently in coal mining has been one of growing interest. I think that Hugh Archbald, judging from his article on this subject, *Coal Age*, July 24, p. 124, has not had much experience with the United Mine Workers of America. Either that, or he is able to handle them better than the rest of us. I have had some dealings with this organization and am

able to say that its chief aim appears to be to get something for nothing, in any way and by any means possible. Its chief weapon is the strike, which always makes someone go hungry, and the men on strike lose more money than they gain.

I recall an instance of this kind where the miners asked for a 5-per cent. increase, but the demand was promptly refused by the operators. A strike was called, which lasted two months, and at the end of that time we went back to work with something like a 2-per cent. increase. But one can readily see that had the full 5 per cent. been granted the men, this would not have made up for the two months' full pay lost, as the following figures will clearly show:

The average earnings in this district were \$65 a month, or \$780 a year. Adding the 2 per cent. allowed, increased this pay to \$66.30 a month, which amounted to \$663 for the entire 10 months following the strike. This showed a loss of \$780 — \$663 = \$117 for each man for that year. Had the full 5 per cent. increase been allowed, the pay would have been \$68.25 a month, which would have amounted to \$682.50 for the entire 10 months following the strike. This would have shown a loss of \$780 — \$682.50 = \$97.50 for each man during that year.

But these figures do not show all that the strike cost the men, as miners always spend more when they are idle than when they are working. I can heartily endorse every word that S. A. Driver has said in his Letter No. 8, Aug. 28, p. 349. I want to congratulate Mr. Driver for the letter he has written, which exposes the whole scheme of labor organizations as they have been conducted. This letter should be read by every member of the union, and especially by union leaders, who should profit by the lessons taught therein. I believe thoroughly that the operator of a mine should have the authority and the right to choose his own working force and to hire and discharge his men at will. This is the only way in which discipline can be maintained in the mine. No men or organization of men should be permitted to usurp this authority in respect to the employment of workers in the mines.

In my experience I have frequently known the pit committee to present complaints that did not come from the men but emanated solely from the committee. When certain rules were posted at the mine it would often happen that the committee would object to their being enforced, claiming that the matter was not mentioned in the contract and stating that trouble would follow if the rule was not rescinded.

Another instance that I recall was where an assistant foreman used a driver to run a motor for a few days when the motorman was absent from the mine. A little later a vacancy was quickly filled by a competent motorman, which was a proper thing for the company to do. The miners, however, took exception to this, claiming that one of their own men should have been chosen for the place. Failing to obtain any satisfaction from the superintendent, the matter was taken up by the committee with the district officials of the union. The result was that the new motorman was charged with "taking a job from a brother miner." These facts illustrate how the principles governing the union work against the efforts that are being made by coal operators for the betterment of the miners. When so much has been done to improve their conditions in the mine and living conditions in the camp, it is discouraging to companies to

have to face these conditions, for which the union alone is responsible. It requires a big-hearted man to overlook the foibles of this class of mine workers, who I am glad to say are greatly in the minority.

What a boon it would be to coal mining if every mine worker would consider the interest of his company as his own interest, and the operator, in turn, regard the welfare of his employees as his own welfare. It would not be long then before trouble makers would be forced to find other employment than that for which they are paid by the union. That would be a glorious day for the mining industry. The industrious mine worker would feel more at ease and be able to settle down and make his own home, where he could live in cheer and comfort with his family.

Mr. Driver has illustrated well the true conditions growing out of the influence of the union to compel a fixed wage scale, where he cites the case of a man who had worked in the mine all his life but was compelled to accept the same day wage as another man who had never been in a mine until the day he was given a job greasing cars at the bottom of the shaft. I think with Mr. Driver that it is difficult to understand how Mr. Archbald, an efficiency engineer, can advocate these principles from his standpoint.

It cannot be wondered that men who have striven by study to improve themselves that they might qualify for a higher position should be discouraged. It is often remarked, "What is the use of studying to fit yourself for a higher place, when the union will see that you get the place whenever there is a vacancy?" I have heard men remark more times than I can tell that "there is no use to study any more when everybody draws the same pay." Again, "If the boss finds that I know more about some things than the other fellow he will impose upon me, and it is better that I should not know so much, unless I can get more pay."

An honest worker, striving to better himself and do better work for the company, gains nothing, but rather loses, because he accomplishes more than his fellow-worker, but is paid the same scale. For his pains he is often called a company's "sucker"—a term that is the next thing to being called a "scab," in return for which any man will fight. This discussion has done much good, and if men will heed what has been suggested the future will see a great improvement. There will be developed a class of miners striving to provide for their families good homes and anxious to become loyal citizens.

ASSISTANT FOREMAN.

Bevier, Ky.

# Study Course in Coal Mining

BY J. T. BEARD

## The Coal Age Pocket Book

**The Circle**—In the mensuration of the circle, the ratio of the circumference of the circle to its diameter is a constant factor, which is the same for all circles and is designated by the Greek letter ( $\pi$ ) pi.

**Value of  $\pi$** —The length of the circumference of a circle cannot be expressed exactly in terms of its diameter, although numerous attempts have been made since the time of Archimedes, and the value of  $\pi$  extended to 35 decimal places without reaching a final result. For all practical purposes, however, this value is  $\pi = 3.1416$ .

**Formulas**—Calling the radius  $r$ , diameter  $d$ , circumference  $C$  and area  $A$ , for any circle:

$$\text{Circumference, } C = \pi d = 2\pi r \quad (1)$$

$$\text{Diameter, } d = \frac{C}{\pi} = \frac{C}{3.1416} \quad (2)$$

$$\text{Radius, } r = \frac{d}{2} = \frac{C}{2\pi} = \frac{C}{2(3.1416)} \quad (3)$$

$$\text{Area, } A = C \times \frac{r}{2} = \pi r^2 = 3.1416 r^2 \quad (4)$$

$$A = \pi \left(\frac{d}{2}\right)^2 = \frac{\pi}{4} d^2 = 0.7854 d^2 \quad (5)$$

**The Arc of a Circle**—An arc of a circle is a portion of its circumference. The arc is measured by its subtending angle,

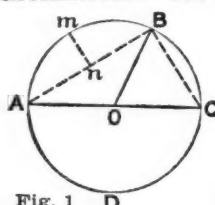


Fig. 1

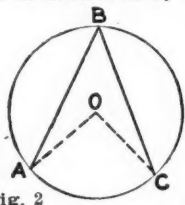


Fig. 2

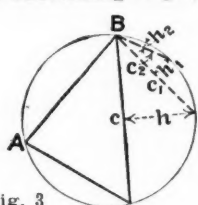


Fig. 3

or the angle it subtends, which is the angle formed by the two radii drawn to the extremities of the arc. Thus, in Fig. 1, the arc AmB is measured by the subtending angle AOB; the arc BC by the angle BOC; and the sum of these two arcs, or the semicircle ABC is equal to 180 deg. or two right angles, the full circle or circumference being 360 deg.

**The Chord of an Arc**—A chord of an arc is the straight line joining its extremities. A straight line joining any two points of the circumference of a circle and not passing through its center is a chord of that circle. In Fig. 1, the dotted lines AB and BC are chords; but the line AC, passing through the center O, is the **diameter of the circle**.

The **rise of an arc** of a circle is its perpendicular distance from the chord, at its center. Thus, in Fig. 1, the line mn, drawn perpendicular to the chord AB, at its middle point n, is the rise of the arc AmB.

## The Coal Age Pocket Book

A **segment of a circle** is that portion of the area of the circle bounded by a chord and the arc it subtends. Thus, in Fig. 1, AmBn is a segment of the circle ABCD.

A **sector of a circle** is that portion of its area bounded by an arc and the two radii drawn to its extremities. Thus, in Fig. 1, OAmB is a sector of the circle ABCD.

**Calculation of Area**—The area of a sector or segment of a circle, like that of the circle, can only be approximated. If the angle subtending the arc of the sector or segment is given the **area of the sector** is found by multiplying the area of the circle by the ratio of the given angle to 360 deg.

The **area of the segment** is then found by subtracting from the area of the sector, the area of the triangle formed by the chord and the two radii. The area of this triangle is equal to the product of the half-chord and the radius less the rise of the arc.

When the subtending angle is not given, the area of a sector must be found from the length of its arc; thus,

$$\text{Area of sector} = \frac{1}{2} \text{ length of arc} \times \text{radius}$$

Not knowing the subtending angle, the length of the arc must be calculated from its chord and rise or the radius of the circle. This calculation depends on a principle that admits of a close degree of approximation.

**Principle**—The chord of any arc of a circle is a mean proportional between the diameter and the rise of twice that arc.

The repeated application of this principle makes it possible to calculate successive subchords, or chords of half the preceding arc. Each successive subchord more closely approaches the line of the given arc.

**Formulas**—The following formulas are employed:

Let  $l$  = length of arc;

$h$  = rise of arc;

$c$  = chord of arc;

( $c_1, c_2, \dots, c_n$ , successive subchords)

$n$  = number of subchords;

$r$  = radius of arc.

$$\text{First subchord, } c_1 = \sqrt{2rh}$$

$$\text{Rise of half-arc, } h_1 = r(1 - \sqrt{1 - h/2r})$$

The next successive subchord and rise are then calculated by substituting for  $h$  the value of  $h_1$  found. This process can be continued to any desired number ( $n$ ) of subdivisions. The last subchord ( $c_n$ ) multiplied by the number of subdivisions ( $n$ ) will be approximately the length of the arc.

$$\text{Length of arc, } l = nc_n = 2n \sqrt{h_n(2r - h_n)}$$

$$\text{Area of sector, } a = \frac{lr}{2} = nr \sqrt{h_n(2r - h_n)}$$

$$\text{Area of segment, } a' = nr \sqrt{h_n(2r - h_n)} - \frac{c}{2}(r - h)$$



## Inquiries of General Interest

### An Electrical Transmission

I want to inquire as to the actual advantage in the operation of a direct-current dynamo at our power plant. At this plant we have two direct-current machines, each having a capacity of 150 kw. at 250 volts. The line transmission consists of four large copper wires extending from the power house to the mine. The first mine is located at a distance of  $\frac{3}{4}$  mi. from the power house, while the second mine is at a distance of  $1\frac{1}{2}$  mi. from the power house, and the entry in this mine is almost a mile long. At present we are operating the two dynamos in parallel. I would like to ask, Would it be better to separate the transmission lines leading to these mines and operate the dynamos independently of each other?

Is it possible to use the rails of the tracks for the return current? Also, at what distance would you advise to discontinue the use of a direct-current dynamo and install in its place an alternating-current machine?

M. K. MARLOWE.

Block, Tenn.

The choice between the use of a direct-current and an alternating-current machine in electrical transmission is purely an economic consideration. It is generally better to employ a direct-current machine whenever the distance is such that the line drop is not excessive. The available voltage at the end of the line must be sufficient for the load at that point. When it is possible to use a direct-current transmission, the necessity for converting the current, by means of a rotary converter or a motor-generator set, is obviated. On the other hand, it often happens that the length of transmission is such as to require the use of the alternating current, in order to avoid excessive expense for copper. Another feature that must often be considered is the price of electricity. When this is high, it may often prove advisable to adopt an alternating-current transmission, which permits the use of a higher voltage and a smaller current, requiring less copper for the same work to be performed. However, a change from direct-current to alternating-current transmission may necessitate changing the mine motors. These questions must all be considered beforehand.

In the present case it may be stated that there would be a decided advantage in operating the two machines independently, using a separate line transmission for each mine. By this means the available voltage at each mine could be regulated to suit the conditions of transmission, and it would not be necessary to operate the motors at the nearer mine at an unnecessarily high voltage, such as is required for the longer transmission of current to the second mine.

In reference to the use of the track rails for the return current, this should always be done when it is possible to provide and maintain a good bonding of the rails. By the use of a rail return the cost for copper is reduced, the double trolley system is eliminated and the rail return reduces the total resistance for transmission.

No distance can be stated as the limit for the employment of a direct-current transmission, since for the reasons given the choice between direct and alternating current depends on many conditions not named in this inquiry. It is a matter that must be worked out for each individual case by a competent electrician who is fully acquainted with the requirements in any particular case.

### To Rescue a Drowning Person

Can you inform me of the best method to adopt to rescue a drowning person? In other words, if a man was seen to be drowning in deep water, and a good swimmer went to his rescue, what method should the swimmer adopt; and how should he approach and handle the drowning man, in order to protect himself and rescue the man?

RESCUER.

Oakview, Colo.

The first consideration of a rescuer in a drowning accident is, obviously, self-preservation, for only in this way can a double tragedy be avoided. A poor swimmer should never go to the rescue of a person drowning in deep water except in a boat or supported by other means that will assist him in effecting the rescue. There is more or less exaggeration, however, regarding the danger attending the rescue of a drowning person by a strong swimmer. The chief requirement in this case is that the rescuer shall keep reasonably cool, use his judgment and endeavor to reassure the victim in a manner that will tend to restore his self-confidence.

When attempting a rescue under the conditions described, one should maneuver so as to approach the victim from behind. He is then in position to grasp the person by the arms near the arm pits. Then, if he is expert in the water, it will not be difficult for him to swim on his back, propelling himself with his feet and holding the sinking one over him, taking care to keep his mouth above the surface of the water. If the rescued one offers no resistance, the rescuer may be able to hold him in position by placing his left hand under his chin, which will leave the right arm free for swimming.

If the victim struggles violently, however, it may be necessary to adopt drastic measures and render him unconscious by a blow on the head, which is not always possible. It is better to hold the head of the drowning person under the water until he becomes quiet. In case the drowning man succeeds in locking his arms about the rescuer so as to render him powerless, the latter may be able to hold his breath under the water in hopes that the other will relax his hold. Such an event presents the most serious aspect that could arise and must be carefully avoided, if possible. The best means of breaking the death grip of a drowning person is to raise one or both knees and thrust them against his or her chest. The entire strength can thus be used to force the struggling person to loose his grip on the rescuer.

## Examination Questions

### Tennessee Examination for Mine Foremen, Etc.

(Continued from Last Issue)

**Ques.**—If you were in charge of a "Class-A" mine, employing an average of 100 men and 10 mules, how much air would be required, in order to comply with the mine law? Would you be satisfied with this amount of air, and if not, how much air would you require for the ventilation of the mine?

**Ans.**—Sec. 9 of the Tennessee mining law designates a "Class-A" mine as one "known to liberate firedamp ( $\text{CH}_4$ ) at present or in the future." For such a mine the law requires a circulation of 150 cu.ft. of air per min. for each person and 600 cu.ft. per min. for each animal employed in the mine. To comply with this law, the volume of air supplied to the mine must be  $100 \times 150 + 10 \times 600 = 21,000$  cu.ft. per min. Under general working conditions this volume of air would be insufficient for the thorough ventilation of a mine of this size generating marsh gas in considerable quantity.

The volume of air required for efficient ventilation of the mine will depend on the number of splits and the area of the air passages, in addition to the number of men and animals employed in the mine. In any case the velocity of the air current must be sufficient to effectually sweep away the gases that would otherwise accumulate in the working places and in the void and abandoned places in the mine. Also, the air volume must be sufficient to dilute the gases generated so as to render them harmless. The velocity of the air sweeping the working faces should be from 200 to 300, or even 350 ft. per min., depending on the quantity of gas generated.

**Ques.**—In a wreck that causes a trolley wire to fall, if a man receives a shock and, becoming unconscious, falls on the wire, describe in what different ways you would try to rescue him from danger and how you would attempt to resuscitate him after getting him off the wire.

**Ans.**—Replying to the first question, grab him by his loose garments if these are dry, and jerk him quickly in a way to remove him most readily from the wire. If a dry pole or stick is at hand this may be used to roll or push him from the wire. A dry coat or jacket or anything at hand will be useful to employ in grasping the man and dragging him from his dangerous position. In any event, avoid standing in water or coming in contact with his wet clothing. Of course if rubber shoes or gloves are available, these should be used as being good insulators. Always stand on dry ground or a dry board, and avoid, by all means, coming in contact with a live wire or rail. The trolley wire may be safely cut by a sharp ax or hatchet having a dry wooden handle. It is well to grasp the handle with a dry cloth or piece of clothing, or, better still, a silk handkerchief, as silk is one of the best of insulators.

Replying to the second question, in order to restore the man to consciousness or to invigorate him if still conscious, the treatment to be employed after he is re-

moved from contact with the wire is artificial respiration. This should be done promptly. The Schaefer method is the best to adopt. In this method the man is laid at full length on the ground, with his face down, care being taken to see that his mouth is open and that the tongue falls forward. The head should rest on one arm, while the other is extended above the head, which is turned slightly to one side to permit the free access of air to mouth and nostrils. Kneeling on one side, or astride of the man, without resting on him, the operator places the palms of his hands on the short ribs across the small of the man's back, with thumbs almost touching. Then, by alternately pressing downward, so that the weight of the operator's body compresses the chest of the victim, and rising again so as to give opportunity for the chest to expand, and repeating these movements at the rate of about 12 to 14 a min., the action of breathing is duplicated and air induced to enter the lungs.

**Ques.**—What are the main points to be considered in respect to a good mine door?

**Ans.**—First, the door should be located, as far as practicable, in a straight portion of the entry, and under good roof where the opening is not too wide. It should never be located at the foot of a grade, where cars may not be under control. Second, a substantial frame should first be erected in the entry by setting two good posts, one on either side of the road, a short distance outside of the rail. If no crossbar is used at the roof a heavy plank should be spiked on the outby side of these posts close to the roof. This should extend the full length of the entry, from rib to rib, a lighter post having been set close to each rib. The open space on each side of the road is now closed by nailing short boards to the posts, and the entire frame is calked with waste or old canvas so that it is air-tight. The door itself is made of a double thickness of boards nailed together and framed diagonally or on the bias, so as to provide a sufficient support and prevent the sagging of the door. This is hung on the intake side of the door-frame and given a slight fall, so that it will be impossible for it to remain open unless it is propped back or otherwise held.

**Ques.**—State the advantages and disadvantages of the use of curtains instead of doors, and explain where you would prefer to use a curtain instead of a door, giving the reasons why.

**Ans.**—A door has the advantage of being more permanent and deflecting the air more completely than a curtain, while a curtain is more quickly hung and costs less than a door, besides presenting less obstruction in the entry in case a driver loses control of his car.

A curtain is generally preferred where it is desired to partially split the air, sending a portion of the current through the rooms, while a small scale of air continues to travel the entry. Also, wherever the arrangement is only temporary, and quite generally in the workings, while doors are usually preferred on main haulage roads and airways and between sections of the mine.



# Coal and Coke News

## Washington, D. C.

Information from the Canal Zone shows that work on the coaling facilities there is progressing fast. At the Pacific Terminal the erection of the unloader towers is going rapidly forward. Excavation at the west end of the unloader towers and wharf was continued during August. At the reloader wharf work has continued on excavating caissons placing excavating steel and sealing the caissons. The excavation in the caissons amounted to 1,162 cu.yd., 336 cu.yd. of which was hard rock. To date 76 caissons are under way and 48 sunk to rock.

At the Atlantic Terminal eight of the end wharf caissons have been sealed and seven filled with concrete. Eighty linear feet of floor containing 655 cu.yd. were poured for the unloader wharf and 200 lin.ft. of floor containing 1,365 cu.yd. were poured for the reloader wharf. Caisson foundations for the unloader and reloader wharves were completed.

At the end of the month excavation was completed in all but six of the 31 caissons. The erection and riveting of deck steel for both unloader and reloader wharves were entirely completed. The installation of hoppers and chutes on bridges and bridge diggers is proceeding rapidly. The operating cabs on diggers have been partially enclosed, and transformer house and controller coops completely housed with corrugated iron and siding, but no floors installed.

Steel for all four towers is about 99 per cent. completed and 98 per cent. riveted. Fuel oil plants have likewise been carried much further toward completion, the building being substantially completed at the Mount Hope plant and well advanced at Balboa.

### Trade Commission to Again Get Into Action

It is expected by the 25th of September practically all, if not all, of the members of the Federal Trade Commission will have reached Washington ready for resumption of work. One or two are already in residence. It is stated that many complaints and various letters of inquiry concerning mining enterprises of various descriptions have reached the Commission from investors and others.

There were already a good many inquiries and communications from small stockholders and representatives of minority stockholding interests who desired aid in different ways from the Commission. One of the first pieces of work to be undertaken by the Commission will be a report on the hearings hitherto held both before and during the recent trip.

### PENNSYLVANIA Anthracite

**Weatherly**—The Lehigh Valley Coal Co. has just put into operation a new mine on Buck Mountain and has named it Council Ridge colliery.

**Bloomsburg**—Judge Evans, of the Columbia County Court, has issued an opinion restraining the County Commissioners from refusing to print the name of Keran Donahue as a candidate for mine inspector at the primary election. This case was similar to the one brought in Schuylkill County in which it was sought to prevent nominations for mine inspector on the ground that it was a state office and could not be voted on at a county election. In this latter case the Supreme Court granted a supersedas and it was on this bill that Judge Evans based his opinion.

**Lansford**—After making full time practically all summer the collieries of the Lehigh Coal & Navigation Co. in the Panther Creek Valley were compelled to shut down recently from Friday night until Wednesday, due to a lack of orders caused by the unprecedented heat wave which gripped the eastern seaboard for about two weeks.

**Seranton**—An explosion in the Surface Vein in the National mine recently tore through to the surface and wrecked the garden of Frank Mangan. Vegetables were uprooted and thrown high in the air. This explosion occurred about two miles from the National Colliery.

**Duryea**—While at work in the Hallstead mine of the Delaware, Lackawanna & Western Coal Co., five men were recently burned by gas, three receiving serious injuries. They were all, however, taken to their homes in Duryea, and at Simpson.

### Bituminous

**Connellsville**—Production of coke throughout the Connellsville region recently attained approximately 390,000 tons per week with shipments at about the same figure. Stock coke has practically disappeared from the region.

**Star Junction**—Preparations have been made by the Echard Coal & Coke Co. to put the plant in readiness to start. Orders for firing the ovens are expected shortly.

### WEST VIRGINIA

**Charleston**—West Virginia coal operators who ship their products to Western markets over the four trunk line railways operating in West Virginia will make a centralized fight against the proposed 60 per cent. increase in freight rates for the transportation of coal to Western points. While the tariffs proposing the increase have not yet been filed with the Interstate Commerce Commission by the railroads, the operators have been informed that they are now being prepared.

**Eccles**—The hoisting engineer for the New River Collieries Co. was recently arrested for neglect of duty, brought before a justice of the peace and fined \$50. The engineer had charge of the operation of the fan, and was found asleep on duty. As a consequence of his neglect the fan had greatly slowed down in speed, thereby endangering the lives of those at work in the mine. This occurred at shaft No. 5 where the explosion of Apr. 28, 1914, occurred.

**Charleston**—Thirty-five men were killed during the month of August in the mines of West Virginia. As usual, falls of coal and slate were responsible for most of the fatalities.

### ALABAMA

**Birmingham**—The Alabama Safety Association will hold a big field day meet on October 8 at the State Fair grounds and the State Fair will cooperate with the association in making awards.

**Lewisburg**—The coke ovens of the Alabama Co. at Lewisburg and Brookwood have been relighted after being shut down for several months. The two furnaces of this company at Gadsden will probably be started soon.

### KENTUCKY

**Lexington**—An all-day meeting of the board of directors of the Kentucky River Coal Corporation was held recently in this city, attended by the leading officers of the company. President W. S. Dudley, of Lexington, presided. It was stated after the meeting that routine business, details of organization, etc., were given the attention of the members present. A large number of leases of coal lands held by the company were passed on, it is said.

**Pikeville**—The coal business throughout this region is showing considerable improvement, and it is believed that this improvement means a similar change in the business of railway companies. Various improvements are being installed throughout this region in anticipation of a heavy output next year.

### OHIO

**Bellaire**—The Blakewell Coal Co. recently ordered out a force of 10 men to report at its Georgetown mine to clean up and repair the development. It is believed that this mine is about to resume operation. When working full it employed 150 men, but has been idle since the start of the strike over a year ago.

**Gloucester**—Mine No. 22 of the Hisylvania Coal Co. was put out of commission recently, because of an accident to the machinery. The damage will be repaired within a week.

**Athens**—Mine Inspector J. M. Roan, assisted by a corps of helpers recently opened mine No. 211 of the Sunday Creek Coal Co., located near Athens, which was sealed up last May, following a disastrous fire. When the mine was opened it was found that the fire had burned itself out and that a large quantity of coal had been consumed. The fans were started and ventilation established. The Sunday Creek Coal Co. will not operate the mine for the time being, as all of its Ohio mines are closed.

**New Straitsville**—The Jones Bros. mines near New Straitsville were seriously damaged by a flood a short time ago. Damage was also done to a Sunday Creek mine at Nelsonville and a mine of the Corning Mining Co. at Corning.

#### INDIANA

**Brazil**—Clay County is beginning to fear that coal stripping operations are going to interfere materially with agricultural pursuits. The Ehrlich Pierce Co. of Turner, Ind., has begun stripping on 1,000 acres near Staunton and there are several other stripping pits mining at a depth of 9 to 30 ft.

**Washington**—An unusual occurrence—lightning entering a coal mine—is reported from the Cannelburg mine of the Daviess County Coal Co. The bolt struck the top of the tippie, ran down the sides to the water pipes and entered and lighted up the mine where 100 men were at work. Four men were in the weighroom through which the bolt passed. They were uninjured.

**Oakland City**—An explosion in the T. C. Bugg mine recently injured one man seriously and three others slightly. The mine had been idle while a new tippie was being built and the men entered the workings before the air had been thoroughly circulated.

#### COLORADO

**Denver**—The Colorado Fuel & Iron Co. has posted, at its numerous coal mines in Colorado, notices to the effect that hereafter no man over 49 years of age, or apparently over that age, and no boy under, or apparently under, 16 years of age, will be given employment. This rule has been made by this company as a precaution against excessive demands for indemnities under the new employees law but it does not affect those men or boys in the employ of the company prior to Sept. 1, 1915. In the future, according to this same rule, each new applicant for employment must, if requested, submit to a medical and physical examination by the company's physicians.

The state industrial commission has notified the coal operators of Colorado that no reductions will be made under the new workmen's compensation law from the rate already in use under the old line insurance companies, namely \$7.47 per \$100 of payroll. This rate when compelled to be paid will make the cost of compensation insurance run into high figures, and the matter is arousing much discussion among the coal men. Many of the large companies are opposed to having insurance written in the state fund as the latter carries the coal mine risk. It is understood that a number of the coal operators will form a mutual insurance company, as they are authorized to do under the law. Others of the large concerns will prefer to carry their own risks and file a bond with the commission to guarantee payment of compensation losses.

#### ILLINOIS

**Chicago**—The Southern Illinois Coal Operators' Association has filed with the Interstate Commerce Commission a petition asking for a rehearing of the Western rate case.

**Danville**—Control of the Dering Coal Co. properties at Westville and West Frankfort has passed into the hands of the Producers Coal Co., which is headed by F. S. Peabody. This firm will operate the property for the Continental & Commercial Bank, and for Kuhn, Loeb & Co., of New York.

**La Salle**—It was announced recently by the La Salle County Carbon Coal Co. that its mine on East First St., La Salle, would shortly begin operation with a full force of employees. For some time past preparations have been made for starting, while during the period which the mine had been shut down, a number of improvements have been made. Two hundred and fifty men, and possibly more, will resume work at this operation.

### FOREIGN NEWS

**Nuneaton, England**—Several hundred miners were trapped at Exhall colliery Sept. 21 as the result of a fire. The cage employed to bring workmen to the surface was destroyed, but out of about 250 miners in the colliery at the time of the disaster, 200 were rescued by means of an emergency shaft.

**Essen, Germany**—It is reported that the German Coal Syndicate has been prolonged for 15 months. It was apparent that the Syndicate would be dissolved at the expiration of the present agreement, but the federal council issued a decree for a compulsory organization under government auspices unless the mine owners settled their differences.

### PERSONALS

William J. Harris has been appointed Pittsburgh representative of the Star Manufacturing Co. of New Lexington, Ohio.

W. C. Coke and G. B. Taylor, both of Pittsburgh, have been appointed explosive chemists in the Bureau of Mines at Pittsburgh.

Benjamin N. Ford of Cincinnati has been appointed receiver for the Templeton Coal Co. of Dolan, Harrison County, Ohio. His bond was fixed at \$10,000.

John L. Kemmerer, secretary and treasurer of the Kemmerer Coal Co., accompanied by his wife, has gone on a hunting trip for big game in the Fall River Basin of Wyoming.

J. N. Sherer was recently appointed sales agent for the Producers Coke Co. at Uniontown, Penn., in place of Richard Peters, Jr., who recently became allied with the William J. Rainey interests.

Lot Jenkins of Martins Ferry, Ohio, has been promoted from custodian of the Ohio mine rescue car "Buckeye," to mine inspector of the eighth district. Mr. Jenkins' headquarters will be at Martins Ferry.

Albert L. Allen, assistant to the general manager of the New York State Workmen's Insurance Fund, was recently elected assistant manager of the Pennsylvania fund, and instructed to start work on forms, schedules and other preliminaries.

Walter Peterson has been appointed as sales agent of the Susquehanna Coal Co. with headquarters at No. 1 Broadway, New York City. Mr. Peterson succeeds George H. Bressette, who resigned after several years service. Mr. Peterson was formerly connected with the Staple Coal Co. and the Pittsburgh Coal Co. He is well known among the coal trade.

Lowther Ferris, formerly general sales agent of the Wellington-Comax Agency, Ltd. (Canadian Colliers, Dunsmuir, Ltd.) of Victoria, B. C., has organized and will become general manager of the Columbia River Coal Dock Co., of Portland, Ore. Large docks for coal storage and ship bunkering are to be erected at once on North Portland Harbor at North Portland, Ore.

Irving R. Gard has been appointed consulting engineer for the Columbia River Coal Dock Co., of Portland, Ore. He will design and superintend the construction of the coal bunkering and storage docks which this company will erect at once on the Columbia River near North Portland. The plant, when completed, will be the largest and most efficient in the Pacific Northwest.

Willis H. Brown has been chosen as vice-president of the Seiler-Blanchard Co., of No. 1 Broadway, New York City. He is well and favorably known among the coal trade in the eastern part of the country. Mr. Brown was for several years connected with the Skeele Coal Co., of 90 West St., both as general sales manager and as vice-president. The Seiler-Blanchard Co. will occupy larger quarters on the ninth floor of No. 1 Broadway in the near future.

Walter Schlagier, paymaster for a colliery near Wilkes-Barre, Penn., was waylaid by robbers, who took from him \$1,100 in cash, besides valuable jewelry. The robbery took place near a stripping just beyond Keystone, to which point he had been escorted by state police as a matter of precaution. He had hardly traversed a half mile when he was assailed by four men and after being relieved of his valuables was wired to a tree. State police are scouring the territory and hopes are expressed that the culprits will soon be in custody. The paymaster was not injured in any way.

### INDUSTRIAL NEWS

**Denver, Colo.**—The National Fuel Co. recently awarded a contract for a new wood tippie at the Shamrock mine to the Roberts & Schaefer Co. of Chicago.

**Pittsburgh, Penn.**—Five million tons of coal held up in the Kanawha River awaiting a favorable stage was recently started southward. The majority of the shipment was to Cincinnati.

**Charleston, W. Va.**—The Cabin Creek Consolidated Coal Co. has awarded a contract for a Marcus coal tippie equip-



ment for installation at Kayford, W. Va. to the Roberts & Schaefer Co.

**Wilkes-Barre, Penn.**—A case involving approximately \$2,500,000 was recently placed on trial before Judge H. A. Fuller. This suit is that of the Delaware, Lackawanna & Western R.R. against the Kingston Coal Co., and concerns the construction and execution of coal leases and mining contracts dating back to 1878.

**New York, N. Y.**—The Wolf Safety Lamp Co. of America, Inc., has removed from 49 West St., to 74-80 Washington St., New York City. The new factory, as well as the offices of the above company are now located at the Washington St. address. Lamps are now manufactured complete at this address as well as all component parts thereof.

**Bluefield, W. Va.**—A special term of the Federal District Court to convene on Oct. 12, is scheduled to hear an ejectment suit of the Pocahontas Coal & Coke Co. against Milton Curtis and others. The question at issue, it is understood, is the matter of mineral rights. The case has been on the docket of the Federal Court for the past two years or more.

**Winburne, Penn.**—Messrs. Peale, Peacock & Kerr, of New York, recently awarded the contract for a two-track steel tippie with car haul for mine No. 9 at Winburne, Penn., to the Roberts & Schaefer Co. of Chicago. They have also let a contract to the same company for a Marcus patent picking table screen for mine No. 24 of the Russell Coal Mining Co. of Russellville, Penn.

**Fairmont, W. Va.**—Condemnation proceedings by the Western Maryland R.R. Co. to secure rights of way for the construction of the Fairmount-Helens Run R.R. will be heard at a special session of the Circuit Court called for Oct. 8. Much trouble has been experienced by the Western Maryland in procuring rights of way, and as a result it is deemed necessary to resort to condemnation proceedings.

**Philadelphia, Penn.**—The Philadelphia & Reading Ry. Co. has advertised for sale the equipment of the barges "Tunnel Ridge" and "Coleraine," which went ashore at Highland Light Apr. 3 last. The vessels are so hard and fast aground that it has been decided that it would be too expensive to float them and the decision was therefore made to sell all the fittings such as boilers, chains, spars and windlasses.

**Huntington, W. Va.**—Coal loadings on the Chesapeake & Ohio Ry. for the first 16 days of September, 1915, have increased more than 100,000 tons over loadings for the same period of a year ago. From Sept. 1 to 16 inclusive, 1,260,770 tons of coal were loaded on the Chesapeake & Ohio while during the same period last year only 1,139,180 tons were handled. This shows a difference in favor of 1915 of 121,590 tons.

**Des Moines, Iowa**—The State Mining Department of Iowa, as the first important step in an educational campaign throughout the state, installed a coal exhibit in the mines and mining building at the State Fair. It was endeavored by every means possible to impress upon visitors at the Fair the value of the mining industry of the state. Coal from more than 100 mines in 23 counties was shown, one lump weighing over 2,000 lb.

**New Haven, Conn.**—There has recently been formed an organization among graduates of Yale University known as the Yale Engineering Association. While any Yale graduate is eligible for membership, the Association naturally appeals most strongly to those engaged in engineering manufacturing or transportation pursuits. It is proposed to hold the first meeting of the Association in New Haven, Conn., the early part of November.

**Baltimore, Md.**—The Baltimore & Ohio R.R. has announced plans for a giant new coal pier in this city to supplement the present pier at Curtis Bay. The pier will cost approximately \$1,500,000. It will have the most modern unloading machinery, so that all chutes can be used on one vessel or separately, with a shuttle and belt arrangement to prevent breakage. The capacity of the pier will be from 3,000 to 6,000 tons per hour according to the necessity for rapid loading.

**Richmond, Mo.**—The Pickering Coal Co. is arranging with the General Electric Co. for a motor generator set and a storage battery locomotive for use in its mine. This is said to be the first use of electricity for traction in the smaller mines of the district. The locomotive is of four tons capacity, equipped with iron-clad batteries of 300 ampere-hours capacity, from the Electric Storage Battery Co. of Philadelphia. Current will be bought from the local central station at Richmond, half a mile away, a line being extended for that purpose by the station. The line will carry alternating

current, which will operate the generator set, producing direct current for the storage batteries.

**Richmond, Va.**—Affirming the decision of the District Court at Phillippi, W. Va., the United States Circuit Court of Appeals has decided that the Elk Coal Co. is entitled to possession of a tract of 1,000 acres in Randolph County, W. Va. This title was contested by George W. Snyder and others.

**Youngstown, Ohio**—The new byproduct coke oven plant, or addition to the plant, consisting of 75 ovens, being erected by the Republic Iron & Steel Co., will be completed about Nov. 1.

**Coalwood, W. Va.**—The Carter Coal Co. has authorized the Roberts & Schaefer Co. of Chicago to proceed with the building of a large Marcus patent coal tippie with "R. and S." loading booms, which was contracted for some months ago for the new mine recently sunk at Coalwood, and known as the Olga mine. This will be one of the largest installations in the state. The firm has also given the Roberts & Schaefer Co. a contract for a new wooden Marcus tippie for the Nora mine at Coalwood, W. Va.

**Philadelphia, Penn.**—On Oct. 1 the Goulds Manufacturing Co. of Seneca Falls, N. Y., will open a Philadelphia office at 111 N. Third St. It purchased the business of H. E. Trotman, who up to the present time has been distributor for Goulds pumps in this territory, and has leased from him the store-room and warehouse at the above address. E. S. Jenison, formerly with the Canadian Fairbanks-Morse Co., Ltd., Montreal, has been appointed manager and F. G. Kramer, formerly in the employ of H. E. Trotman, will be assistant manager. J. B. Trotman will continue with the Goulds Manufacturing Co.

**Louisville, Ky.**—The Louisville & Nashville R.R. Co. has announced forthcoming changes in the operation of certain of its lines in central and eastern Kentucky, which are of much importance to the coal operators in the Jenkins section. The changes will be effective Oct. 1. They will include consolidation of the old Louisville & Atlantic division from Frankfort to Beattyville Junction with the eastern end of the Lexington & Eastern division, from Maloney to Jenkins, a distance of about 240 miles. This will form one of the longest divisions of the L. & N. in the state. The section of the L. & E. from Lexington to Maloney will be joined with the Kentucky Central division and directed from the office at Paris. The general offices which have been located at Lexington will be abolished and the force divided between Paris and Irvine. The proposed changes will call for new train schedules on all the lines involved and these will be put into effect shortly.

**Uniontown, Penn.**—Fayette County coke to England is the latest word in export circles, and although the tonnage being shipped from the ports of Baltimore and Philadelphia at present is not as large as that to some of the other countries, the way has been blazed for future orders it is believed and a steady stream of trade to the British Isles, at least during the European hostilities, is looked for. The word of a prominent coke producer is that although the Connellsville operators sell to the exporters on the Atlantic Coast, they would rather see their product go to some country that is not engaged in the European war, and instead of being emergency suppliers, lay the foundations for a healthy export trade. South America does not use much standard coke, but the tonnage of coal and coke to points south has materially increased during the past two months and before the winter is over a line of trade should have been established between here and Argentina, Chile, Bolivia and other countries of South America that should have lasting results.

**Uniontown, Penn.**—With coke bringing \$2.25 a ton, numerous independent plants throughout the Connellsville-Klondike region are making plans to reach a maximum output by Oct. 1. The Aetna Connellsville Coke Co., which has 70 ovens burning at present, will increase its production gradually until the entire plant is working at capacity. Thompson-Connellsville No. 1 is working full with all of its 400 ovens fired and 450 men employed. Sometime between Sept. 20 and Oct. 1, 200 of the 400 ovens at Thompson-Connellsville No. 2 plant will be fired. At present a large force of men is engaged in cleaning up the plant in anticipation of a resumption. Three hundred ovens are in operation at Tower Hill No. 1 and between 100 and 150 of the 400 at No. 2 plant will be fired shortly. This company is aiming to reach a maximum output as soon as possible. The Waltersburg Coal & Coke Co. is advertising for men preparatory to resuming operations and firing 150 additional ovens. It is not known when the increase in production will become effective but it is said the company expects to have work for 150 to 175 men by the first of October.

# Coal Trade Reviews

## General Review

**Hot weather causes a collapse in the anthracite market. Bituminous continues to improve slowly. Shortage of vessels causes a heavy slump in exports. Car and labor supply becoming important factors.**

**Anthracite**—There has been a general collapse in the hard coal trade as a result of the unprecedented high temperatures. Dealers are slashing prices in an endeavor to force business, and the situation is fully as adverse as any time during the summer. Ordinarily the anthracite business begins to tone up at about this time, and it is most unusual to encounter a purely weather market at this period. The one encouraging factor in the situation is the fact that there is sure to be a sharp rush for coal with the first appearance of lower temperatures. At the moment stove coal is the only grade commanding the full circular price, with egg next, and fairly well maintained at close to the company prices. Pea and chestnut are at a complete standstill and the steam grades are weak, though showing indications of doing better.

**Bituminous**—The soft coal trade continues its quiet course toward better conditions, the improvement being slow but satisfactory. No important price recessions are noted as a result of the extremely hot weather, the general tendency being to mark time pending further developments. Occasional orders are even appearing without solicitation, which indicates that the small manufacturers are beginning to resume operations. While the coal car supply has so far continued adequate, reports of occasional shortages in isolated districts are creating no little concern over the future outlook. On the better grade fuels the demand is active, with prices firm.

**Exports**—The foreign trade has been greatly handicapped during the past week by the scarcity of vessel tonnage. As a result, the movement has shown a sharp decline, while accumulations at the loading piers are excessive, particularly at Hampton Roads, where a large tonnage is awaiting arrival of vessels. The movement out of Baltimore for the current week has been the lightest for a number of months, and the present indications are that the September dumping at Hampton Roads will be somewhat less than for last month. Vessel rates are stiffer, due in part to the beginning of the grain movement, and a continuation of the high freights and a paucity of vessels will restrict the offshore movement to a substantially less volume than has been anticipated.

**Lake Markets**—Hot and unseasonable weather does not often affect the bituminous trade appreciably, but the temperatures have been so extremely high that there has been a sympathetic relapse in this branch, together with the anthracite market. However, the delayed buying, resulting from the present temporary apathy, will ultimately result in an even greater activity with the advent of more seasonable temperature conditions. In the meantime prices are relatively steady at figures slightly above the low summer level, the railroad consumption continues to increase, and the requirements of the iron and steel industry in the Pittsburgh district remain at the maximum rate. While no important shortage of cars is yet apparent, the situation in this respect is notably different from a few months ago. A congestion of grain is reported in the West and the railroads are rushing all available equipment in that direction.

**Middle West**—The domestic market has been well sustained, notwithstanding the excessively hot weather. Temperature conditions have been more favorable toward the Northwest, which, combined with the advance in freight rates effective Oct. 1, has shaken out quite a number of unexpected orders. A satisfactory volume of orders is coming in from the country dealers. The car-supply question is steadily becoming a more important factor in the situation, especially where operators are particular regarding the kind of equipment; increased tonnage, the heavy grain movement and a shortage of motive power are the chief difficulties.

**A Year Ago**—Heavy demand for anthracite continues unabated. Bituminous slowed down still further and the outlook is now most discouraging. Lake shipments for the season show a big loss. Middle Western steam fuel given away for freight charges.

## BUSINESS OPINIONS

**Iron Age**—Export business is more distinctly the dominant factor in the steel trade than in any previous month of the war. Foreign rather than domestic demand caused an advance of \$2 a ton in wire products on Saturday, and in the past week the inquiry for steel rounds and for billets and blooms from Canadian makers of munitions and from France has been on a scale well-nigh incredible. As a whole the market is moving upward, not uniformly nor yet with any spectacular developments, but in response to the special influences that have produced a scarcity of steel.

**American Wool and Cotton Reporter**—The last week has been quiet but firm. It would seem as if manufacturers were pretty well supplied with wools, and are working on what they have before they make new purchases. Considerable comment is made in regard to the method England is employing in retaining wools which have already been bid on and paid for by American purchasers. The woolen goods market is generally in a favorable condition. War orders have been more profitable than expected. They have kept looms in operation which otherwise would have been idle, and have kept up prices of domestic goods.

**Financial Chronicle**—Contracts arranged for building operations in 159 cities of the United States during August totaled \$70,333,787, as compared with \$64,039,053 during the same month of last year. The figures for the first eight months of the current year are the smallest for any year since 1908, the approximate figures for the past three years being \$536 million for the current year, \$584 million last year and \$666 million in 1912, this latter being the high record for this period.

**Bradstreet**—The week's reports spell progress in agriculture, finance, trade and industry. Much-needed warm weather has given an impetus to the maturing of the large corn crop, winter-wheat threshing has been facilitated, spring wheat has begun to pour into the markets, and export trade in grain and cotton has expanded. In financial lines, while prices for securities continue to mark time, the pushing of negotiations for a large foreign loan here have righted the foreign exchange market and stiffened prices of farm products, the export of wheat and cotton being thereby facilitated. Despite excessive heat which tends to hold back retail demand for fall, jobbing trade shows expansion at most centers.

**Dun**—Oppressive heat checked trade activities in numerous directions, but this is a temporary drawback and is more than offset by the benefit accruing to the maturing crops. For the present, cross-currents appear in commercial channels, with the diplomatic complications continuing to cause hesitancy in forward undertakings. Hence, there is less of the anticipatory buying that usually follows the assurance of bountiful harvests, but general trade has made a substantial recovery from the previous depression, and the fundamental situation is so sound that a permanent check to the advance is unlikely.

**Marshall Field & Co.**—Current wholesale shipments of dry goods show some increase over the corresponding week a year ago, and sales are about even with those of the same period. Fewer merchants have visited the market, and collections are slightly below normal. The staple domestic cotton goods market is firm. The warm weather is giving retailers an opportunity to clean up their stocks of summer goods, but it is delaying the distribution of fall merchandise.

**The Southern Lumberman**—Fall business in yellow pine is opening up slowly but steadily. Southern mills with stocks well within the probable range of demand are holding up prices and announcing occasional advances on items on which they find stocks getting short. Western retail dealers continue to buy in small lots. Domestic demand for hardwood lumber continues to increase as the fall season advances. No radical changes in the market are detected from week to week.



## ATLANTIC SEABOARD

### BOSTON

The weather unfavorable to a firm market, but no change in prices. Competition from fuel oil begins to rouse interest. Georges Creek and Pennsylvania grades unchanged. Freights easy and anthracite demand subject to the weather.

**Bituminous**—The extremely hot weather was not favorable to any strengthening of the market. No recession in prices has been noticed, however, and generally Pocahontas and New River have marked time. The only spot business offering coastwise is for out of the way points and in such cases the transportation people are asking such rates as compared with those from Philadelphia that buyers are not much encouraged to take Southern coal. The export demand continues steady and gives every sign of being the mainstay of the market the rest of the season. More coal could be shipped off-shore were there more steamers to be had.

Shippers feel that with more seasonable weather there will be renewed interest in f.o.b. coal and that requisitions on contracts will improve in volume as fall comes on. At New England distributing points coal is in ample supply and prices correspondingly low. In fact, sales have been made within a week at as low a level as at any time this year.

There is a good deal of interest, especially in Portland and Providence, over the efforts of one of the large oil distributors to shift manufacturing plants from coal. The International Paper Co. is now being changed over to use oil at several of its plants; this concern uses 100,000 tons of bituminous a year at the plants in question so the matter is one of vital interest.

Georges Creek shows no material change. Shipments on contracts are coming through with regularity but shippers of this grade have the same difficulty as others in stirring up any buying interest in spot coal. Prices are held with all the firmness so characteristic of the Georges Creek operators.

The shippers of Pennsylvania grades are doing only hand-to-mouth business. The miners of the better coals have an amount of contract business that keeps them running on part time, but the general demand will have to improve materially before the market will receive any impetus. Prices for spot coal are still at the season's minimum, with only small advances for winter delivery. All-rail the market is sluggish, most consumers being stocked to capacity.

**Water Freights** continue about as last quoted; 75c. @ 80c. is asked for tonnage from Norfolk and Newport News to Boston. Rates from New York to Providence are slightly firmer, due to the protracted fog and slow movement of boats; \$1 is the rate quoted from Hampton Roads to Bangor, Me.

**Anthracite**—Retail trade slackened off with the summer temperatures and wholesale inquiry has been light in consequence. The shipping companies are, however, fairly well supplied with orders. Broken is about the only domestic size that is at all short with any of the companies.

The market is quotable on the following basis per long ton:

	Philadelphia*	New York*	Baltimore*	F.o.b. Mines
Clearfields.....	\$2.15@2.65	\$2.45@2.95	.....	\$0.90@1.40
Cambria and Somerset..	2.40@2.90	2.70@3.20	.....	1.15@1.65
Georges Creek.....	2.92@3.02	3.22@3.32	\$2.85@2.95	1.67@1.77
Pocahontas and New River.....	.....	.....	2.80@2.85	.....
* F.o.b. loading ports.				
Pocahontas and New River prices on cars at Boston are \$3.55@3.73 and at Providence \$3.50@3.68.				

### NEW YORK

Unseasonable weather retards anthracite trade. Coal handlers strike causing delay in shipments. Mines working better. Bituminous shippers encouraged. Labor situation becomes serious. Export situation good.

**Anthracite**—Weather conditions continue to check the anthracite coal industry. In addition the market has felt the effects of the coal handlers strikes, although this was of short duration. Unseasonable temperatures of the past ten days have played havoc with the market. Demand at Tidewater has not increased and prices on individual prepared coals continue 25 to 35c. off the circular. The loading piers hold sufficient coal to satisfy present requirements, but the surplus on hand is not great.

The mines are working better than for many weeks and the surplus tonnage is being sent to the stock piles. Indications are that the operators are preparing for a long suspension in the spring. Reports of the line trade from the West

and South are encouraging, and demand from Northern points show signs of becoming stronger. This is especially true of the New England States where comparatively little winter supply has been accumulated. Considerable hard coal is being shipped by vessel to Canada, Custom House reports showing shipments during the past several weeks of 52,870 gross tons.

Little change has taken place in the steam-coal situation. Barley and rice coals are short with most shippers and there is a better call for pea and No. 1 buckwheat.

Current quotations on anthracite, gross tons, f.o.b. at Tidewater, are:

	Lower Ports		Upper Ports	
	Circular	Individual	Circular	Individual
Broken.....	\$5.05	.....	\$5.10	.....
Egg.....	5.30	\$4.80@5.30	5.35	\$4.90@5.35
Stove.....	5.30	4.80@5.30	5.35	4.90@5.35
Chestnut.....	5.55	5.00@5.55	5.60	5.10@5.60
Pea.....	3.50	3.25@3.50	3.55	3.50@3.55
Buckwheat.....	2.75	2.25@2.75	2.80	2.25@2.80
Rice.....	2.25	1.75@2.25	2.30	2.00@2.30
Barley.....	1.75	1.45@1.75	1.80	1.75@1.80

**Bituminous**—A better feeling exists in the bituminous coal market. The labor question is assuming serious proportions and is likely to cause much trouble when it is necessary to increase production. The railroads continue to take large tonnages for storage purposes, in anticipation of labor troubles in the spring, when the working agreements in both the bituminous and anthracite regions expire. This increased demand has caused some of the favored operators to go on better working schedules.

There is a feeling of confidence in the export situation. Vessels remain scarce and carrying charges are stiff while many new inquiries are being received and reports of prospective orders are numerous. The demand for coke is also occupying a prominent position in the export trade.

Current quotations per gross ton at tidewater, f.o.b. are:

	South Amboy	Port Reading	St. George	Mine Price
Georges Creek Big Vein.....	\$3.20@3.30	\$3.20@3.30	\$3.20@3.30	\$1.75@1.85
Georges Creek Tyson.....	2.90@3.00	2.90@3.00	2.90@3.00	1.35@1.45
Clearfield:				
Medium.....	2.65@2.80	2.55@2.65	.....	1.10@1.25
Ordinary.....	2.55@2.60	2.55@2.60	.....	1.00@1.15
Broad Top Mountain.....	.....	.....	.....	1.10@1.45
Cambria County:				
South Forks.....	2.90@3.05	.....	.....	1.35@1.50
Nanty Glo.....	2.75@2.80	.....	.....	1.20@1.25
Barnesboro.....	2.65@2.70	.....	.....	1.10@1.15
Somerset County:				
Quemahoning.....	.....	2.70@2.85	2.70@2.85	1.20@1.30
Medium.....	2.65@2.70	2.60@2.65	2.60@2.65	1.10@1.15
Latrobe.....	2.45@2.55	.....	.....	.90@1.00
Greensburg.....	2.75@2.80	.....	.....	1.10@1.15
Westmoreland.....	3.15@3.20	.....	.....	1.35@1.45
West Virginia Fairmont.....	.....	2.60@2.70	2.60@2.70	.80@.90
Fairmont mine-run.....	.....	2.45@2.55	2.45@2.55	.75@.85
Steam.....	.....	2.45@2.50	2.45@2.50	.90@.95
Western Maryland.....	.....	2.35@2.40	2.35@2.40	.85@.90

### PHILADELPHIA

Continuation of heat wave unsettles the anthracite market badly. Stove coal most active. Chestnut and pea badly off circular. Buckwheat fair but other steam sizes dull. Quite an improvement continues in bituminous, with prospect of better prices. Export trade good.

**Anthracite**—With the temperature reaching 90° or over for seven consecutive days the coal business has suffered an utter collapse. Ordinarily when mid-September arrives things begin to move with some briskness, but as a result of the extraordinary weather conditions the trade has been as dull as the worst week in July or August. Of course this means restricted mining and several of the big companies have already made announcements to this effect. On the other hand coal is sure to go out with a rush the moment the first seasonable weather arrives which must be soon. It is also noted that dealers who supply the steam trade are enjoying good business and it seems to be picking up right along.

A number of dealers in domestic coals, in their anxiety for business, have cut retail prices so badly that the effort to get what little business there is has practically resulted in a scramble. There have been advertisements quoting prices on pea coal which is now almost exclusively a family coal, delivered in the cellars at from \$4.50 to \$5.25. As it now stands many dealers are apparently going to give the public the margin they saved this summer in buying.

Of the several sizes, the most active in the wholesale market is stove coal and there is no reason to doubt that this size is bringing anything but the full circular price. Next in demand is egg with the full price fairly well maintained, although there is an occasional exception here and there, with sales made without tax or from 5 to 10c. off. Chestnut continues weak as usual, with large quantities being stored and what is sold generally sacrificed. Pea coal, which had a good start during the last few days of August and first days

of September, is at a standstill, due to the fact that most dealers are holding up their orders. Sales of the finer grades have been made at \$1.85 and in a very few instances at \$2 and the tax, but absolutely nothing higher. An occasional instance has been noted where this grade was offered at \$1.65, but certainly not the first-class article.

The steam sizes, buckwheat, rice and barley, with the exception of the first named, are not moving very well. However, buckwheat seems in fair demand and with prospects of doing still better, as the mills in this district are going on full time. The other two sizes are being heavily stored.

The circular prices, to which the Pennsylvania State tax of 2½% per ton should be added, are as follows:

	Line	Tide		Line	Tide
Broken.....	\$3.50	\$4.75	Pea.....	\$2.50	\$3.25
Egg.....	3.75	5.00	Buckwheat.....	1.25	2.25
Stove.....	4.00	5.00	Rice.....	.85	1.75
Chestnut.....	4.15	5.25	Barley.....	.50	1.50

**Bituminous**—The trade continues its quiet trend toward improvement. The gain is slow to be sure, but none the less satisfactory. Wholesale offices are receiving orders now and then without solicitation, which shows that the small manufacturer is getting under way in response to the generally improved business conditions. The car supply continues generally satisfactory and the cause for anxiety at the moment seems to be in the labor supply, although time may show that even this is perhaps somewhat exaggerated. The export business continues even more active, shipments and inquiries both being in good volume. Vessel tonnage remains scarce, with the prospect of continuing so for an indefinite period. Freights, too, are closely held.

There has been no appreciable change in prices during the week and while the list below is a fair basis, there is no doubt that a change all along the line is imminent:

Georges Creek Big Vein..	\$1.65@1.75	Fairmont gas, 1.....	\$1.20@1.30
South Fork Miller Vein..	1.50@1.60	Fairmont gas, mine-run..	1.05@1.15
Clearfield (ordinary).....	1.00@1.20	Fairmont gas, slack.....	.70@.80
Somerset (ordinary).....	1.00@1.15	Fairmont lump, ordinary..	.90@1.00
West Va. Freeport.....	.85@.95	Fairmont mine-run.....	.85@.90
		Fairmont slack.....	.60@.70

#### BALTIMORE

**Export movement hampered by lack of vessels. Scarcity of cars in Fairmont and Somerset regions. Market for bituminous steady.**

The export movement has fallen off sharply due to lack of vessels. Only eight vessels were loaded here for foreign account last week, and only five charters were announced. During the week ending Sept. 18 only 19,981 tons was loaded here for foreign account, the smallest amount for some months past.

Car scarcity was felt severely last week in both the Fairmont and Somerset districts. The Somerset region reported about a three-fourths of requirements while the Fairmont region did not have more than a two-thirds supply. The market on bituminous grades is firm and some of the better qualities show slight increases in price.

The anthracite trade here is only fair. There is much talk from dealer to consumer about possible strike troubles in the spring, but as yet this bears but little fruit. Cooler weather has arrived and strengthened the market.

#### HAMPTON ROADS

**Weeks shipments fair. Government takes some coal by collier. Prices remain unchanged. September movement light.**

While the dumpings over the Tidewater piers may not have been as heavy as expected, they have shown up fair. Export shipments have moved principally to Italian and South American ports. Italy has taken the largest amount going to any one country. The shipments to South America have been divided among the various countries with the largest quantities going to Brazil and Argentine Republic.

Prices on all grades remain practically unchanged although there is a fairly large accumulation of coal at Tidewater. The large amount on hand is no doubt due to the fact that there are a number of vessels due whose cargoes have already arrived.

From the present outlook the indications are that the total movement from Hampton Roads for the month of September will hardly come up to August unless vessel tonnage should arrive faster than it has.

**Railroad Tonnages**—Dumpings over the local piers for the past five weeks compare as follows:

Railroad	Aug. 21	Aug. 28	Week Ending Sept. 4	Sept. 11	Sept. 18
Norfolk & Western....	172,546	211,699	232,334	156,459	182,047
Chesapeake & Ohio....	129,826	103,472	82,485	93,260	87,680
Virginian.....	77,136	82,131	72,302	70,855	59,597
Totals.....	379,508	397,302	387,182	320,574	329,336

## Ocean Charters, Clearances and Freights

### OCEAN CHARTERS

The following charters have been reported from various sources during the past week:

#### PHILADELPHIA

Vessel	To	Tons	Rate
Anne Lord	Moncton	246	1.70
J. H. Hoyt	Calais	394	1.30
J. Rothwell	Rockland	473	1.00
F. Brainard	Nantucket	198	1.00
Northern	Marseilles	2,912	
Linda Fell	Havana	1,924	
Kalliope	Pernambuco <sup>1</sup>	1,588	6.25
Socotra	Pernambuco <sup>1</sup>	1,604	6.25
Bris	Pernambuco <sup>1</sup>	972	6.25
Finland	Pernambuco <sup>1</sup>	1,590	6.25
Camino	San Fran.	3,308	
Orkild	Cuba	1,622	
W. Adams	Labucon		4.00
Modiva	Guantanamo	778	
Molde-			
guard	Havana	1,788	
<sup>1</sup> Or Rio de Janeiro			

#### BALTIMORE

Vessel	To	Tons	Rate
Osterland	Sweden	3,391	
Lysefjord	Sagua	597	
St. Gothard	Havana	1,790	
Liberstad	Martinique	571	
P. Maersk	Malmö	830	
H. S. Little	Point-a-Pitre	1,600	3.75
Thrasylvou-			
los <sup>1</sup>	Italy	2,296	10.20

#### VIRGINIA

Vessel	To	Tons	Rate
I. P. Juste-	Buenos Aires	1,183	7.92
sen			
Dowgate	La Plata	1,986	8.04
Thrasylvou-			
los <sup>1</sup>	Italy	2,296	10.20

#### ATLANTIC RANGE

Vessel	To	Tons	Rate
Stathatos	Italy	2,296	10.44
<sup>1</sup> Or Virginia.			

### VESSEL CLEARANCES

The following steamers have cleared during the week Sept. 10 to Sept. 17:

#### NORFOLK

Vessel	Destination	Tons
Wellington <sup>1</sup>	Guaymas	2,013
Ancon <sup>2</sup>	Canal Zone	9,500
Douglas <sup>3</sup>	Antafagasta	6,403
Rasaei <sup>4</sup>	Buenos Aires	5,003
R. W. Stevens	St. Michaels	1,636
Ocland <sup>5</sup>	Port of Spain	4,707
Tibay <sup>6</sup>	Rio de Janeiro	3,270
Bodon <sup>7</sup>	Stockholm	4,500
Denis <sup>8</sup>	Para	1,911
A-hlibster <sup>9</sup>	Italy	6,107
Ocano <sup>10</sup>	Porto Ferrajo	5,750
A. M. Daven-		
port <sup>11</sup>	Rio G. Du Sul	1,688
A. E. Bullard <sup>12</sup>	Pernambuco	2,086
Gemma <sup>13</sup>	Genoa	2,901
Dowgate <sup>14</sup>	La Plata	4,327
M. Goulardis <sup>15</sup>	Savona	5,145
Chiswick <sup>16</sup>	Barbadoes	4,607
Zandijk <sup>17</sup>	Rotterdam	5,000
Lucy Neff <sup>18</sup>	St. Thomas	1,000
Atlantide <sup>19</sup>	Porto Ferrajo	7,600
Great City <sup>20</sup>	Genoa	8,900

#### NEWPORT NEWS

Vessel	Destination	Tons
Fructidor <sup>10</sup>	Spezia	6,000
Svend 2nd <sup>11</sup>	Havana	3,136
Etna <sup>12</sup>	Buenos Aires	7,350
Pennistone <sup>13</sup>	W. C. Italy	6,027
Fede <sup>14</sup>	Gib for orders	5,404
Berwindvale <sup>15</sup>	Havana	8,000

#### BALTIMORE

Vessel	Destination	Tons
Meisner	Italy	3,890
Lysefjord	Cuba	1,074
Libertad	Martinique	919
Osterland	Sweden	5,511
Maersk	Sweden	2,226
St. Gothard	Cuba	4,431
Peter Maersk	Sweden	1,930
<sup>1</sup> Hasler Bros. Inc.		
<sup>2</sup> W. C. Atwater		
<sup>3</sup> Barber & Co., Inc.		
<sup>4</sup> Baker		
<sup>5</sup> Whiteley C. Co.		
<sup>6</sup> C. G. Blake Co.		
<sup>7</sup> H. N. Hartwell & Son.		
<sup>8</sup> C. & O.		
<sup>9</sup> Coal & Coke Co.		
<sup>10</sup> Pocohontas Fuel		
<sup>11</sup> Smokeless Fuel Co.		
<sup>12</sup> New		
<sup>13</sup> Berwind White.		

#### NEW YORK\*

Destination	Tons	Value	Destination	Tons	Value
Halifax	14,655	\$74,483	Port William	480	\$2,496
Sackville	475	2,423	Souries	326	1,718
Chatham	484	2,420	Barrington Passage	161	853
St. John	11,872	54,409	Freeport	253	1,283
Yarmouth	1,769	9,105	Arichat	200	1,043
Sydney	567	2,965	Weymouth	158	828
Kingsport	313	1,660	Westport	265	1,375
Bridgewater	778	3,147	St. Andrews	871	3,847
Windsor	668	3,432	Dugby	474	2,389
Campbelltown	1,763	8,643	Montague	484	2,503
Charlottetown	5,186	25,949	Federetcon	328	1,775
Bathurst	582	2,029	Dorchester	472	2,366
Bridgetown	215	1,084	St. Pierre	401	1,969
Annapolis	733	3,674	North Sydney	332	1,812
Paspebiac	465	2,429	Point du Cheue	411	2,147
Chesconimi	1,850	9,925	St. Stephen	555	3,750
Lunenburg	704	2,464	Wolfville	501	2,575
Cardigan	688	3,490	Dartmouth	604	1,676
Liverpool	199	1,062	Summerside	1,226	5,460
	401	2,125			

### OCEAN FREIGHTS

The freight market is firmer than a week ago, owing to the absorption of steamers for the grain trade, and the amount of available tonnage has also decreased. A number of steamers were chartered during the past week at \$7.92@8.04 on coal to Lower Plate ports, but these fixtures were undoubtedly at less than the market. It is reported today that a steamer has been closed at \$10.44 to West Italy, which is a little higher than recent charters for this destination. West Indian and Cuban rates are also firmer. We would quote freight rates on coal by steamer as follows:

To	Rate	To	Rate
Havana.....	\$2.50@2.75	Bermuda.....	\$3.00
Cardenas or Sagua.....	2.75@3.50	Vera Cruz.....	3.50@3.75
Cienfuegos.....	3.25@3.50	Tampico.....	3.50@3.75
Port au Spain, Trinidad.	3.75	Rio.....	8.16
St. Lucia.....	3.50@3.75	Santos.....	8.16@8.40
St. Thomas.....	3.00@3.25	Montevideo.....	8.04@8.16
Barbados.....	3.75	Buenos Aires or La Plata	8.16
Kingston.....	2.75@3.25	Rosario.....	8.40
Curacao.....	3.25	West Coast of Italy.....	10.32@10.56
Santiago.....	2.75@3.25	Barcelona.....	9.60@9.84
Guantanamo.....	2.75@3.25	Valparaiso or Callao.....	7.25@7.50
Demerara.....	5.00@5.50	Marseilles.....	9.84@10.08

Note—Rates noted in bold face type are only approximate.



## LAKE MARKETS

### PITTSBURGH

**Unseasonably hot weather disappearing. Demand improved. Prices firmer. Operations at close to 70 per cent. Occasional slight car shortages.**

The apathy in the retail coal trade as a result of the recent unseasonably hot weather is likely to yield to a condition of greater activity as the season advances. The consumption of domestic coal is, of course, still at the summer rate but more buying by retail dealers is expected. The iron and steel industry continues to operate at full capacity and as the weather improves tonnage outputs are increasing, involving the use of somewhat more coal. The railroad consumption also continues to increase.

The general tendency in coal prices is toward a greater stiffness and on occasional lots of Lake coal sold in the past few days better prices have been obtained than early in the season. The Lake movement, however, while heavier, is still confined almost entirely to operations by shippers who have their regular contracts, or mines of their own.

Occasional shortages of cars are now being reported by some of the mines. There have been no serious shortages but conditions are noticeably different from those of a couple of months ago, when there were ample supplies on all divisions.

Mining operations in the Pittsburgh district are now at close to 70% of capacity. Prices for free coal are strictly held at the following figures as minimum: Slack, 50@60c.; nut and slack, 90@95c.; nut, 95c.@\$1; mine-run, \$1.05; ¾-in., \$1.15; 1¼-in., \$1.25, per net ton at mine, Pittsburgh district. On contract to Apr. 1 the market is firm at 85@95c. for slack, \$1.15@1.20 for mine-run, \$1.25@1.30 for ¾-in. and \$1.35@1.40 for 1¼-in.

### BUFFALO

**Bituminous trade suffers from the hot weather. No further improvement looked for till the temperature is lower. Anthracite dull. Lake shipments light.**

**Bituminous**—There will not be much business till the effects of the hot weather over the first half of the month are overcome. There is scarcely a shipper who does not report the market flat for the time being. It is not likely that there will be a permanent slump, but there will be no snap until colder weather appears. Prices are 5 or 10c. higher than they were in midsummer, which means something when they have been at the bottom so long.

There is quite an increase in mining, but the outlook is not good for any further increase till the real autumn weather sets in. It is quite possible that it may be close to November before the market resumes a stable firmness. Quotations on bituminous are weaker on the basis of \$2.65 for best Pittsburgh lump, \$2.50 for three-quarter, \$2.49 for mine-run and \$2.05 for slack. Allegheny Valley sizes are still about 25c. lower than Pittsburgh. All slack coal is about on a par and much stronger than formerly.

**Anthracite**—The market continues quiet. It was expected that there would be a healthy demand early this month, but this has not been realized. The fall trade will no doubt go over to October, unless there is some steady cool weather soon. The city trade is about as slack as at any time during the summer. The rail line trade is not heavy yet and Lake shipments for the week were only 85,000 tons. There are reports that Western consumers are buying coal as they bring in their grain, but the effect has not yet been noticed here to any extent.

### COLUMBUS

**Brisk demand for domestic sizes continues. Steam business also active and price lists well maintained. Mining operations show a decided increase.**

The coal trade has been showing improvement all along the line. Domestic buying is brisk, despite the continued warm weather, and dealers are placing orders for immediate shipment.

Retail trade is active both in the city and rural sections. Farmers are now hauling their winter's supply of fuel, while householders in the cities and towns are also laying in their supplies and there is considerable school contracting going on. Public institutions are in the market for their coal supply and there is a generally healthier tone to the trade. Retail prices are well maintained and there is considerable talk of an advance about Oct. 1.

Steam business is rather active as manufacturing continues to improve. Railroads are taking more fuel for their freight movement and in addition are storing up large quantities

against possible emergencies. Contracting is not active at this time as few contracts are expiring. There is not much demurrage coal offered on the local market. Steam prices are much firmer than formerly with the exception of the small sizes which are weaker.

Lake trade is still quite active and a considerable tonnage is being shipped to the Northwest. The dock situation at the upper Lake ports has improved. The Toledo docks of the Hocking Valley loaded approximately 73,000 tons during the past week.

In retail circles there is a good demand for Pocahontas and West Virginia splints. White ash is also moving well. Anthracite is in better demand than ever in central Ohio territory. The coke market is becoming firmer as the season advances.

Prices in Ohio fields are as follows:

	Hocking	Pomeroy	Eastern Ohio	Kanawha
Re-screened lump.....	\$1.50	\$1.50		
Inch and a quarter.....	1.40	1.40	\$1.30	\$1.30
Three-quarter inch.....	1.25	1.25		1.25
Nut.....	1.15	1.25		1.15
Mine-run.....	1.05	1.10	1.00	1.05
Nut, pea and slack.....	.60	.65	.50	.60
Coarse slack.....	.50	.55	.40	.50

Mines have been working at about the following percentages of full capacity:

District	Week Ended				District	Week Ended			
	Aug. 28	Sept. 4	Sept. 11	Sept. 18		Aug. 28	Sept. 4	Sept. 11	Sept. 18
Hocking....	35	45	40	45	Cambridge..	35	40	44	45
Jackson....	20	20	25	25	Massillon..	50	40	40	45
Pomeroy..	45	50	50	60	Eastern O..	55	60	60	70
Crooksville.	30	35	35	40					
					Average..	34	41	42	47

### CLEVELAND

**The market is stronger at the prevailing prices, but no advances have been reported this week. Lake shipments heavy.**

There is a marked strength in the trade, due very largely to the higher prices being asked by some operators. Quotations are being made by a number of operators, although others have apparently withdrawn from the market, as they are quoting prices beyond the reach of the local jobbers. Shipments in the Lake trade are larger, but the local market is barely holding its own. This puts the jobbers in a rather difficult position. Until all operators quote higher prices the market here is not likely to change. It was assumed that a revival of Lake business would increase the supply of fine coal and prices would suffer, but this has not been the case, as fine coal is verging on an advance of 5c. per ton.

Lake shipments are as large as operators are able to make. The all-rail demand is holding the Lake movement back and probably will until well into next month. As it is the operators and shippers who have contracts are having some difficulty in arranging for vessels. Grain rates are the highest they have been in years and vessel managers are declining coal cargoes in order to save time and late shipments of coal will cost the shippers heavily, as one-trip grain profits are equal to three or four trips with ore and coal.

Jobbers are buying at the following prices:

	Pocahontas	Youghiogheny	Fairmont	Berg-holz	Ohio [ No. 8
Lump.....	\$3.70			\$2.30	
Lump, 6-in.....				2.30	
Lump, 14-in.....		\$2.25		2.10	\$2.15
Lump, 4-in.....		2.15@2.20	\$2.00	2.00	1.95@2.00
Egg.....	3.70			1.95	
Mine run.....	2.70	2.10@2.15	1.90	1.85	1.85
Slack.....		1.65	1.65	1.55	1.60

### DETROIT

**Steam coal orders continue in good volume. Midsummer temperature slows down the domestic market. Lake movement meets new check.**

**Bituminous**—Encouraging features are still developing in the local steam trade and business appears to be gradually expanding under a strengthening demand from consumers. Orders continue of small size, but the buying is regular. Some consumers are still obtaining coal on contracts made some time ago at prices materially below list quotations, and this is a retarding influence in growth of business.

**Anthracite**—Weather conditions have also placed a check on the anthracite business. Yards that were keeping a considerable force busy a week ago are now handling little business and orders to shipper are also less numerous.

**Lake Trade**—Lake shipments are not materially increased but the improvement in movement of other commodities is causing some vessel owners to reject coal cargoes, believing they can save sufficient time by going up light to more than compensate for the loss of freight on coal. It is quite probable all-rail shipments this season will be larger than usual.

## TOLEDO

**Toledo facing a car shortage. Coal movement light and no raise in anthracite the first of the month.**

The one new feature of the coal situation here is the possibility of a car shortage. The Baltimore & Ohio has its agents canvassing the main line of the road in an effort to get freight cars unloaded and into Chicago at the earliest possible moment. It is stated that there is considerable grain congestion and the cars are needed there. The Pennsylvania has drawn all its surplus equipment into use and officers declare that freight traffic is extremely heavy. The New York Central has especially good equipment here, but its surplus stock is being reduced rapidly.

There was no increase in anthracite prices the first of September as is usually the case and chestnut coal is retailing at \$7.85, with stove and egg at \$7.60 per ton. The Lake movement is not heavy for this season of the year. A few contracts are occasionally made but they are for the most part small orders.

## CINCINNATI

**Warm weather has caused a let-up in domestic business. Better prices are promised, however, and prospects for improvement in the steam market are good.**

The warmest weather of the summer has caused a sharp relapse in the growing domestic demand, which was not sufficiently strong to stand any setback. Prospects of an early fall forced some dealers into the market for larger stocks some time ago but the weather has caused a relapse into the waiting attitude. Price concessions, however, seem now to be confined to a comparatively few concerns. While the steam demand has not improved much, the relatively small production of nut and slack caused by the let-up in the domestic market has helped the steam grades considerably, resulting in a stiffening of prices. With indications of a car shortage it is predicted that the coal market is going to be a good deal stronger.

## LOUISVILLE

**Advancing season starting the coal moving in spite of the unseasonable weather.**

With the season rapidly advancing to the point where retailers must lay in stocks, the movement in the Kentucky field is steadily increasing. Block sizes are in best demand, particularly for domestic purposes. Prices are showing some tendency to stiffen, though under the influence of the recent hot weather the edge has been taken off the market. A general improvement in business is forecasted. Jellico coals are selling about as follows, f.o.b. mines: Block, \$1.65@1.75; block and lump, \$1.55@1.65; round, \$1.30@1.35; straight run-of-mines, \$1.10@1.15; 6-in. run-of-mines, \$1; nut and slack, 25@65c., according to character and quality. Some of the fancy coals exceed these prices largely while lower grades are correspondingly lower.

## COKE

## CONNELLVILLE

**Furnace coke contracting slow but buyers and sellers may soon get together. Prompt furnace coke stronger. Production and shipments heavier.**

Apart from the few furnace-coke contracts recently made, buyers and sellers are finding difficulty in getting together, and there is no definite basis yet established for first-half contracts. A definite contracting movement, however, is believed to be not far off, as furnacemen are likely to be found ready to contract whenever they see that a definite trading market has been established. The early negotiations, as already reported, ran exclusively to sliding-scale contracts, based on pig-iron prices, but it has been difficult to arrive at a schedule which would be generally satisfactory and it now seems a distinct possibility that buyers and sellers will get together on a flat price after all.

In such an event the settling basis would probably be between \$2.25 and \$2.50. Recent contracts made include one for the whole of next year, based on \$1.75 for coke if Eastern foundry pig iron is \$14.50, with one-fifth as much advance for coke as for pig iron. Another contract was made, with a valley furnace not now in blast, for coke at \$1.75 minimum on \$12.75 basic iron and one-fifth as much advance in coke as in pig iron. This is a higher price basis than would have been done if the furnace were in operation and certain to continue. For deliveries late in the year sales have been made both at \$2 and at \$2.25.

Prompt furnace coke has stiffened slightly, the minimum of present offerings being \$1.65. We quote: Prompt furnace, \$1.65@1.70; furnace to Jan. 1, \$2@2.25; prompt foundry, \$2.30@2.60; contract foundry, \$2.40@2.60, per net ton at ovens.

The "Courier" reports production in the Connellsville and lower Connellsville region in the week ended Sept. 11 at 387,703 tons, an increase of 7,768 tons, and shipments at 388,862 tons, an increase of 8,231 tons.

**Buffalo**—The demand is good, though there is complaint that too many ovens have been started up. The oven capacity exceeds all possible consumption. The only time when the ovens would all be needed would be when consumers were buying more than they required for present use. Prices are somewhat weaker on the basis of \$4.30 for best 72-hr. Connellsville foundry and \$3.35 for stock coke.

**Chicago**—Coke is still buoyant. Quotations for future delivery indicate that sellers are looking forward to brisk demand with higher prices. All grades are active at the following prices: Byproduct foundry, \$4.90@5.10; byproduct domestic, \$4.75; Connellsville, \$4.85@5; Wise County, \$4.75@5; gas coke, \$3.85@4.

## MIDDLE WESTERN

## GENERAL REVIEW

**Warm weather slows up buying of domestic sizes. Smokeless grades dull. Screenings weaker. Anthracite moving in larger volume.**

Notwithstanding the hot weather which has slowed up the demand for domestic coals, prices are generally well maintained. Orders for domestic sizes are still being received from the country in fair volume. Most Illinois and Indiana mines are oversold on domestic lump but some of the operations are long on egg and nut sizes, which are being sacrificed at low prices to move surplus accumulations at the mines.

Lack of car supply is becoming more pronounced. Small gondola cars are hard to obtain, and a number of mines have lately been obliged to shut down for a full shift until empties could be supplied. The railroads are having more or less trouble in handling both grain and coal which are now simultaneously moving to the markets. Delays are said to be due more to shortage of motive power than to lack of cars.

Screenings are now somewhat stronger but have suffered a decline of from 5c. to 10c. per ton from prices prevailing during the previous week; but even at present figures they are selling at double the prices received at the same time last year. Production is increasing in most of the Western mining districts. In Illinois it is estimated that the output is at 75% of normal and in Indiana 60%. It is difficult to estimate for Kentucky production on account of so many new operations but the output there is about 50% of normal. It is noticeable that some of the larger industrial plants are commencing to buy coal for storage purposes which is not expected to be used until after Apr. 1. This, with the absorption of storage coal by the railroads, the approach of colder weather, and the shortage of cars and labor, and delayed movement on the part of railroads, makes the operator feel optimistic.

## CHICAGO

**Shipments to Northwest heavier. Indiana grades in better demand. Smokeless weak, while Hocking grades are stiffer and Kentucky coals are fluctuating over a wide range.**

The situation in Southern Illinois is satisfactory and mines are operating nearly to capacity. In Franklin County domestic sizes are in strong demand; in Williamson County, while \$1.75 is being received for the better known coals, the average price may be considered around \$1.60. Screenings are easier, as well as other fine sizes, because of the increased output of domestic coal. Indications, however, point to improvement in the steam demand in this section. Shipments to Northwestern points are becoming heavier. The demand for Harrisburg steam lump during the past week has been very active, and improvement is shown in shipment of steam sizes from Saline County. Carterville lump has been very active, and egg and No. 1 washed continue steady at prices ranging from \$1.60 to \$1.75.

Steady buying of domestic lump has characterized the Springfield market and steam coals have also shown an improvement. Screenings are ranging from 50 to 60c., being slightly lower than last week.

Absorption of Indiana domestic coals is improving, but so far country dealers have not taken the amount received in previous years. Steel plants and allied industries are still



backward in ordering coal. The demand for Sullivan and Green County lump has slumped somewhat, and 3d and 5th vein steam lump from the Clinton district has been very quiet. Sullivan County egg and nut are a drag on the market. Knox County steam coals are moving freely at higher prices and Clinton domestic demand is perceptibly stronger.

Smokeless lump and egg is firm at the list price of \$2.25 in the country districts. Plenty of the prepared sizes seem to be on hand in Chicago, available for sale and absorption of these offerings occur at 10 and 15c. under circular figures. Pocahontas mine-run retains its strength and no free shipments are being made under \$1.40. Quite a little contract mine-run has been moving at \$1.25. On splint a wide range of prices still persists. Pennsylvania smokeless mine-run, lump and egg are in steady demand at about \$2, while mine-run is being mainly sold at \$1.25.

Stiffening in the price of Hocking domestic lump is observable. It is reported that \$1.60 will be the circular price after Sept. 15.

Eastern Kentucky prices continue to cover a wide range. Millers Creek Block is in active demand at about \$2.25, but other operators are not so fortunate. Screenings are plentiful and are sacrificed at low figures.

Anthracite is in fair demand. As a result of efforts of retailers to take care of their winter needs deliveries have been more rapid recently, and the market is absorbing offerings without trouble.

Quotations in the Chicago market are as follows:

	Williamson and Franklin Co.	Springfield	Sullivan	Clinton	Knox and Greene Cos.
Lump.....	\$1.60@1.75	\$1.50@1.65	\$1.50@1.60	\$1.35@1.50	\$1.40@1.50
Steam lump 2 1/2 and 3-in. lump.....	1.35	1.25@1.35	1.20@1.30	1.20@1.30	1.20@1.30
1 1/2-in. lump.....		1.25@1.35	1.25@1.35	1.15@1.25	1.25@1.35
Egg.....	1.60@1.75	1.50@1.65	1.10@1.20	1.05@1.15	1.15@1.25
Nut.....		1.50@1.60	.95@1.10	.90@1.05	1.00@1.05
No. 1 washed.....	1.60@1.75		1.50		
No. 2 washed.....	1.35@1.40		1.40		
No. 1 nut.....	1.75				
No. 2 nut.....	1.40@1.50				
Mine-run.....	1.10@1.15	1.05@1.10	.85@1.00	.95@1.10	.85@1.05
Screenings.....	.55@.65	.50@.60	.50@.60	.55@.65	.75@.80

	Harrisburg & Saline Co.	E. Kentucky	Pocah. & W. Va.	Penna. Smokeless	Hocking
Lump.....	\$1.60@1.75	\$1.40@2.00	\$2.10@2.25	\$1.75@2.10	\$1.50@1.60
1 1/2-in. lump.....	1.30@1.35			1.25@1.35	1.25@1.35
Egg.....	1.50@1.60	1.20@1.35	2.10@2.25	1.75@2.00	.85@.95
Nut.....	1.25@1.35	1.15	1.60@1.70	1.25@1.40	
No. 1 nut.....					
No. 2 nut.....					
Mine-run.....	1.10@1.15	.90@1.00	1.25@1.40	1.10@1.25	.95@1.05
Screenings.....	.60@.70	.55@.70			.50@.60

#### ST. LOUIS

High temperatures slow down the buying. Prices holding steady except on screenings.

A belated spell of summer weather has made September seem like August and has checked the improved demand. There has been a falling off in the domestic orders which gave life to the market before the hot wave came. Householders are not worrying about getting their cellars filled for the winter.

Lump coal prices are being upheld firmly and the mines have plenty of orders on this size. Screenings have been much weaker, especially those coming from the inner group, which have been selling as low as 35 to 40c.

	Big Muddy	Frank Co.	Carterville	DuQuoin
8-in. lump.....	\$2.30			
4-in. lump.....	2.20			
2 1/2-in. lump.....	2.10			
9-in. lump.....		\$1.65@1.75	\$1.50@1.60	\$1.50
3 1/2-in. egg.....		1.60@1.75	1.40@1.50	1.40
No. 1 nut.....		1.50@1.75		1.20
No. 2 nut.....		1.40@1.50		
No. 1 washed.....			1.65	
No. 2 washed.....			1.25	
No. 3 washed.....			1.25	
No. 4 washed.....			1.20	
No. 5 washed.....			.70	
Screenings.....	1.00		.45@.50	.45

Prices quoted above are f.o.b. mines. The rates from mines to St. Louis are: Big Muddy, 70c.; Franklin and Williamson County, 72 1/2c.; DuQuoin, 62 1/2c. East St. Louis rates are 25 1/2c. per ton less. When destined beyond St. Louis the rate to East St. Louis is 40c. per ton.

#### INDIANAPOLIS

General improvement in mining operations in Indiana, due mainly to the advancing season. Prices unchanged, except for some weakening of slack.

The impetus due to the fall demand is being felt though the September weather has been anything but suggestive of the need of coal. There is always some accumulation against emergencies and part of this reserve stock is now being laid in. The acceleration of mine operations has resulted in increasing the supply of screenings and there has been some weakening of prices. Sales of Nos. 5 and 6 are reported as

low as 60c., but the best No. 4 still commands 90c. No. 4 mine-run sells at \$1.15@1.20 f.o.b. mine and domestic lump at \$1.50.

Mines have been able to increase running schedules about one-third. There is some complaint about difficulty in getting sufficient gondola cars from the Monon, Pennsylvania and Illinois Central lines. There is a seasonable movement from retail yards and prices are unchanged. Dealers have been making as many contracts as possible at \$2.75 a ton for Indiana domestic lump. Operators report some improvement in railroad buying.

#### DULUTH

Healthy increase in the shipments of bituminous coal features the market.

Bituminous—Dock companies are kept quite busy on rush orders from country dealers and the elevator companies for threshing purposes. All the dock companies and the railroads operating lines into the grain belts of the Northwest, report a large increase in business as compared with a year ago. That the present prices are likely to remain firm, with possibly an advance in the very near future, is the feeling among all of the companies at the present time. The light shipments of this season, together with an improvement in business conditions generally are factors that are likely to create a decidedly firmer tone. Quotations to dealers are as follows:

	Yough.	Hock.	Poca.	Splint	Ky. Elk.
Lump.....	\$3.40	\$3.40	\$4.75	\$3.40	\$3.55
Dock-run.....	3.10	3.05	3.25	3.10	3.25
Screenings.....	2.40	2.25	2.75	2.40	2.55

Anthracite—In the anthracite trade buying has begun in a healthy way but it requires the actual starting of fires to make an impression on most consumers, hence no great rush is expected until cooler weather arrives. Quotations to dealers, f.o.b. cars at docks, Duluth are as follows: Egg and stove, \$6.85; nut, \$7.10; pea, \$5.55.

## PRODUCTION AND TRANSPORTATION STATISTICS

#### MIDDLE WESTERN ROADS

The following is a comparative statement of the coal handled over the 17 principal Middle Western railroads for July and the first 7 months of this year, as compared with the same periods last year:

	July		7 Months	
	1914	1915	1914	1915
Ill. Cent. R.R.....	577,766	550,237	3,984,115	3,996,740
C. & E. I. R.R.....	470,661	428,653	3,770,787	3,251,828
C. B. & Q. R.R.....	401,428	379,912	2,968,866	2,818,051
C. C. & St. L. Ry.....	381,001	374,728	2,624,310	2,739,157
Vandalia R.R.....	337,974	340,926	2,408,272	2,711,619
C. T. H. & S. E. Ry.....	225,556	210,978	1,708,798	1,707,846
C. & A. Ry.....	154,650	134,567	981,318	1,043,840
Wabash R.R.....	117,318	114,298	786,922	869,380
St. L. & I. M. & S. Ry.....	118,791	132,701	821,661	834,983
Southern Ry.....	102,161	85,143	903,287	616,769
B. & O. S. W. R.R.....	33,738	74,522	410,456	547,996
St. L. T. & E. R.R.....	51,811	39,965	358,334	330,967
St. L. & O. F. Ry.....	40,986	47,735	288,966	349,713
I. & M. Ry.....	22,051	22,382	252,992	264,995
C. I. & L. Ry.....	52,015	55,396	344,505	368,613
C. P. & St. L. Ry.....	16,647	28,515	192,554	232,107
C. & N. W. Ry.....	24,902	26,541	181,193	232,229
Total.....	3,129,416	3,047,199	22,987,366	22,918,837

## FOREIGN MARKETS

#### GREAT BRITAIN

Sept. 3—Business on the coal market is very quiet and the demand is slow, with prices in favor of buyers able to take prompt shipments. Normal quotations are as follows:

Bset Welsh steam.....	Nominal	Best Monmouthshire.....	\$5.76@6.00
Best second.....	Nominal	Seconds.....	5.28@5.52
Seconds.....	\$5.76@6.00	Best Cardiff smalls.....	4.32@4.56
Best dry coals.....	5.76@6.00	Cargo smalls.....	2.64@2.88

The prices for Cardiff coals are f.o.b. Cardiff, Penarth or Barry, while those for Monmouthshire descriptions are f.o.b. Newport, both net, exclusive of wharfage.

Freights—Inquiries are fairly numerous, but many merchants are holding off in the hope of lowering rates. Rates are approximately as follows:

Gibraltar.....	\$3.96	Naples.....	\$7.44	St. Vincent.....	\$4.32
Marseilles.....	6.65	Alexandria.....	7.80	Rio de Janeiro.....	5.04
Algiers.....	5.79	Port Said.....	7.80	Monte Video.....	4.80
Genoa.....	7.44	Las Palmas.....	4.08	River Plate.....	5.04

# Coal Contracts Pending

*The purpose of this department is to diffuse accurate information of prospective purchases and prices with a view to affording equal opportunity to all, promoting market stability and inculcating sound business principles in the coal trade.*

†Indicates contracts regarding which official information has been received.

## Recast

In the following table we give a list of all old contracts coming up for consideration during the ensuing week. The table gives our contract number, the name of the purchaser, city, tonnage and page on which the detail notice appeared.

No.	Purchaser	City	State	Tonnage	Page
1349	Board of Education	Ogden	Utah	1,400 b	411
1352	Security Stove Co.	Kansas City	Mo.	4 <sup>2</sup>	411
1356	Municipal L. & W. Department	Storm Lake	Iowa		411
1358	Peter & Burghard S. Co.	Louisville	Ky.	40 <sup>2</sup>	411
1,360	Bd. Pub. Works	Hannibal	Mo.	12,000b	411
1,361	Moline Rock Is. Co.	Davenport	Iowa	75,000b	411
1,368	St. Charles Hotel	New Orleans	La.	3,000	446
1,374	J. P. Nicholson	Erie	Penn.		446
1,381	Bd. Pub. Affairs	Chicago Junction	Ohio	2,500	446
1,382	Municipal W. & L. Plant	Birmingham	Ala.	1,920f	447
1,428	Board of Education	Massillon	Ohio		490
1,435	Canal B. Trust Co.	New Orleans	La.	150b	490
1,438	Interstate B. & Trust Co.	New Orleans	La.	200b	490
1,441	N. O. Cold Storage & W. Co.	New Orleans	La.	3,500b	490
1,443	Dakota Bakery Co.	Minto	N. D.	1 car <sup>1</sup>	490
1,447	Jacobs Candy Co.	New Orleans	La.	400b	490
1,449	Lisbon Sch. Dist.	Lisbon	N. D.	125b	490

a Indicates anthracite coal. b Indicates bituminous. <sup>1</sup> Per month. <sup>2</sup> Carloads.

## Supplemental Notes

Under this heading additional or supplemental information regarding old contracts appears, together with the page number of the original notice.

**1043—Chicago, Ill.**—It is understood that the L. A. Budlong Co. will not contract for their coal supply this season, but will confine their purchases to the open market as their requirements develop (p. 116). The company ordinarily uses Spot Logan splint and Red Jacket egg. Address Purchasing Agent, L. A. Budlong Co., Chicago, Ill.

**†1270—Lake City, Minn.**—This contract (p. 324), which provides for furnishing the Municipal Electric Light and Water Plant at this place with approximately 300 tons of coal, will not be entered into until a change in the weather conditions, the purchases being confined to the open market for the time being. The average price for Island Creek coal this year is about \$3.65 as compared with \$3.85 per ton f.o.b. Lake City, last year. Address Supt. M. J. Stowe, Municipal Elec. Lt. and Water Plant, Lake City, Minn.

**1306—Billings, Mont.**—This contract (p. 366), was last year awarded to the Kooi Coal Co. of Kool, Wyo., but pressure is being brought to bear on members of the Board to let the contract to a Montana concern this season. The price at which the business was done last year was \$2.80 per ton. Address Clk. A. J. Thorine, School Dist. No. 2, Yellowstone County, Billings, Mont.

**1321—Plymouth, Ind.**—Bids on this contract (p. 367), which provides for furnishing Marshall County with 280 tons of Pocahontas egg coal, will be received until Oct. 5 instead of Sept. 7 as previously announced. Address County Audr. G. F. McCoy, Plymouth, Ind.

**1331—Fairpoint, Ohio**—Bids have been received on this contract (p. 467), which provides for furnishing the Wheeling Township Board of Education with coal as follows: George E. Barnes, screened lump, 8c. per bu.; M. C. Huntsman, 7½c. per bu.; A. B. Conron, 7.95c. per bu.; S. S. Brokaw, 9c. per bu.; Wheeling Valley Coal Co., 7.85c. per bu. All bids were for screened lump with the exception of the last, which was for three-quarter lump. Address Clk. Addison Saffell, Bd. of Edu., Fairpoint, Ohio.

## New Business

**†1451—New Orleans, La.**—The Algiers Distilling Co. will be in the market during the early fall for their fuel requirements. Address Purchasing Agent, Algiers Distilling Co., Brooklyn Ave. and Mississippi Levee, Algiers, La.

**†1452—Sayreville, N. J.**—The Board of Education at this place is requesting bids on 150 tons of egg and stove coal, and 25 tons of nut coal to be delivered at the various schools in the district. Address Dist. Clk. Frederick Werner, Bd. of Edu., Sayreville, N. J.

**†1453—Trinidad, Colo.**—The School Board of Dist. No. 1 will receive bids until Sept. 27 for furnishing approximately 700 tons of mine-run and slack coal. Address Secy. School Bd. Dist. No. 1, Trinidad, Colo.

**†1454—Sharpsburg, Penn.**—The Board of Education at this place will receive bids for furnishing lump and mine-run coal for the Locust Street School Building during the coming year. A previous request for bids from the Board of Education at this place was run under contract No. 1230, Vol. 8, p. 245. Address Secy. G. A. Speer, Bd. of Edu., Sharpsburg, Penn.

**†1455—New Orleans, La.**—The Hotel De Soto will contract some time before Nov. 1 for its annual requirements of coal, amounting to about 120 tons per month. Address Gen. Mgr. Vic Le Beau, Hotel De Soto, Baronne and Poydras St., New Orleans, La.

**†1456—Portsmouth, Ohio**—The County Government will receive bids until noon, Oct. 11, for furnishing 5,000 bu. (80 lb. per bu.) of coal for use at the County Infirmary. The coal must run 60% lump, and deliveries are to be completed before Nov. 1 of this year. Quotations should be f.o.b. Portsmouth, Ohio. The successful bidder will be required to furnish a bond for 50% of the amount of the contract. Address County Audr. Thomas C. Patterson, Portsmouth, Ohio.

**†1457—Sharpsburg, Penn.**—Sealed bids will be received for furnishing St. Mary's Church, School, Lyceum and Parsonage with coal as may be required. Address Rev. John Otten, 210 Penn St., Sharpsburg, Penn.

**†1458—Davenport, Wash.**—The Lincoln County Board of Commissioners will receive bids until 1 p.m., Oct. 5, for furnishing and delivering 50 tons of coal to the local Court House. Address Clk. J. E. Howard, Bd. of County Comrs., Davenport, Wash.

**†1459—Hollidaysburg, Penn.**—The Blair County Board of Directors received bids until 10 a.m., Sept. 22, for furnishing the County Home with the annual supply of coal, involving approximately 1,500 tons of bituminous. Quotations should be f.o.b. Spring Meadow siding, and deliveries are to be made as required. Address Secy. D. D. Coleman, Blair County Bd. of Comrs., Hollidaysburg, Penn.

**†1460—La Moure, N. D.**—The La Moure County Board of Commissioners will receive bids until 2 p.m., Oct. 5, for furnishing and delivering approximately 100 tons of Hocking Valley or Virginia splint coal to the County Court House as may be required during the ensuing year. Address County Audr. O. C. Temple, La Moure, N. D.

**†1461—Albia, Iowa**—The Independent School District at this place will receive bids until 5 p.m., Sept. 25, for furnishing the several buildings with coal during the coming school year. Address Secy. C. W. Smallwood, Independent School Dist., Albia, Iowa.

**†1462—Wheelock, N. D.**—The Adams School District No. 79 will receive bids until 6 p.m., Oct. 12, for furnishing the different school buildings with coal during the coming school year. Address Clk. R. E. Pepple, Adams School Dist. No. 79, Wheelock, N. D.

**†1463—Little Falls, Minn.**—The City Government will receive bids until Oct. 4 for furnishing approximately 50 tons of Youghiogheny coal, f.o.b. track at this place. A certified check for 10% of the amount of the bids must accompany each proposal. Address City Clk. Victor Schallern, Little Falls, Minn.

**†1464—Santiago, Chile**—The Compania de Gas is in the market for 10,000 tons of American gas coal running about 40% volatile matter. The coal must produce about 60% coke and



not to exceed 6% ash. Deliveries are to be at Valparaiso, and the coal will be taken in two shipments. Address Purchasing Agent, Compania de Gas, Santiago, Chile.

†1465—**Selby, S. D.**—Bids will be received until 2 p.m., Oct. 5, for furnishing and delivering coal in carload lots to the local Court House. Address Audr. W. E. Hoffman, Selby, S. D.

†1466—**Bismarck, N. D.**—Sealed bids will be received until 3 p.m., Oct. 5, for furnishing and delivering approximately 200 tons of the best lignite lump coal in the bins at the County Court House. Each bid must be accompanied by a certified check for 5% of the amount involved. Address County Audr. T. E. Flaherty, Bismarck, N. D.

†1467—**Highmore, S. D.**—The Hyde County Commissioners will receive bids for furnishing and delivering 75 tons of coal to the County Court House. Bids must specify the units per ton and must be accompanied by a certified check for \$200. Address Audr. L. W. Carter, Hyde County, Highmore, S. D.

†1468—**Wheeling, W. Va.**—The Board of Education of the Triadelphia District received bids until 6 p.m., Sept. 22, for furnishing and delivering coal for about 10 different schools of the district. Some coke will also be required. Address Secy. S. S. Jacob, Jr., Bd. of Edu., Triadelphia District, Wheeling, W. Va.

†1469—**Warren, Minn.**—The Marshall County Board of Commissioners will receive bids until 2 p.m., Sept. 27, for furnishing and delivering 125 tons of Youghiogheny screened lump coal and 30 tons of anthracite. Address Audr. A. G. Lundgren, Warren, Minn.

†1470—**Minnewaukan, N. D.**—The Benson County Board of Commissioners will receive bids until 2 p.m., Oct. 5, for furnishing and delivering 150 tons of lignite coal to the County Court House. All bids must be accompanied by a certified check for 5% of the amount bid. Address Audr. W. E. Paulson, Benson County, Minnewaukan, N. D.

†1471—**Ft. Worth, Tex.**—Bids will be received by the Tarrant County Orphans Home for furnishing one carload of McAlester mine-run, domestic nut, chestnut or pea and slack coal, to be delivered at the Home on the Ft. Worth-Dallas Interurban line. The bids will be received until 10 a.m., Sept. 27. Address Audr. J. A. Mulholland, Tarrant County, Ft. Worth, Tex.

†1472—**Alpena, Mich.**—The Board of Education will receive bids until 4:30 p.m., Oct. 15, for furnishing and delivering Pittsburgh lump coal to the city schools as required during the ensuing year. All bids must be accompanied by a guaranteed analysis. Address Alfred E. Ash, Alpena Bd. of Edu., Alpena, Mich.

†1473—**Centerville, S. D.**—The Independent School District No. 2 received sealed bids until 8 p.m., Sept. 24, for furnishing coal f.o.b. Centerville, S. D., deliveries to be made in September or December. About 125 tons of the best grade 6-in. Sunday Creek, Hocking Valley, Illinois, Island Creek splint or Indiana block coal are required. Address Clk. Walter M. Gardner, Independent School Dist. No. 2, Centerville, S. D.

†1474—**Salt Lake City, Utah**—The University of Utah will receive bids until 1 p.m., Sept. 28, for furnishing 1,500 tons of screened slack coal during the coming school year. Address University of Utah, Salt Lake City, Utah.

†1475—**Cincinnati, Ohio**—The Hamilton County Board of Commissioners will receive bids until noon, Oct. 1, for furnishing approximately 1,500 tons of Pocahontas or New River mine-run coal for the Hamilton County Infirmary at Carthage. Quotations should be on mine-run coal f.o.b. Big Four tracks at Carthage, delivery to be as required by the superintendent during the year beginning October, 1915. Bids must be on blank forms which may be obtained on application, and must be accompanied by a bond for \$300. Address Clk. Albert Reinhart, County Comrs. Office, Cincinnati, Ohio.

†1476—**Cedar Grove, N. J.**—The Essex County Hospital will receive bids until 2 p.m., Oct. 13, for furnishing approximately 10,000 tons of coal for the year beginning Nov. 1. Specifications may be obtained on application. All bids must be accompanied by a certified check for 5% of the amount of the bid, and also a certificate testifying that the bidder has complied with certain state provisions embodied in chapter 253 of the state laws. The successful bidder will be required to furnish a surety bond of 50% of the amount of the contract. Address Supt. George C. Bergen, Pur. Dept., Room 206, Court House, Newark, N. J.

†1477—**Skullman, N. J.**—The New Jersey State Village for Epileptics will receive bids until 1:30 p.m., Oct. 4, for furnishing its coal requirements during the ensuing year. All bids must be accompanied by certified check for 5% of the amount of the tender, and the successful bidder will be required to

furnish a bond for not less than 50% of the gross amount involved. Address Supt. David S. Weeks, M. D., Skullman, N. J.

†1478—**Jamesburg, N. J.**—The New Jersey State Home for Boys will receive bids until 3 p.m., Oct. 5, for furnishing its coal requirements during the year beginning Nov. 1. All tenders must be accompanied by a certified check for at least 10% of the amount of the bid, and the successful bidder will be required to furnish a satisfactory bond for at least one-half of the gross amount involved in the contract. Quotations should include delivery at Lower Jamesburg. Address Supt. John C. Kalleen, State Home for Boys, Jamesburg, N. J.

†1479—**Genoa, Italy**—An inquiry has been received from a large Genoa importing concern for two cargoes (about 4,000 to 5,000 tons each) of New River or Pocahontas coal for immediate shipment. Address E. G. Long Co., 50 Church St., New York City.

## Contracts Awarded

Note—Successful bidders are noted in **bold face** type.

**No. 1255—Ft. Benton, Mont.**—This contract (p. 323), which provides for furnishing school district No. 1 with approximately 200 tons of nut coal, has been awarded to **La Barre & Thompson** at \$4 per ton, delivered in the basement of the schoolhouse. John Muir bid \$4.10 per ton. The coal will be furnished from the mine of the Stainsby Latham Coal Co., Stockett, Mont. Address Clk. Ezra L. Crane, School Dist. No. 1, Ft. Benton, Mont.

**No. 1257—Watertown, S. D.**—This contract (p. 323), which provides for furnishing the Board of County Commissioners with approximately 90 tons of Pocahontas smokeless lump coal, has been awarded to the **Consumers Fuel & Ice Co.** at \$6.75 per ton. Other bids were: Pacific Elevator Co., \$7.25; Watertown Feed & Fuel Co., \$7.20; Selsmer Grain & Coal Co., \$7.15. Address County Audr. J. S. Johnson, Bd. of County Comrs., Watertown, S. D.

†**No. 1258—St. Clairsville, Ohio**—This contract (p. 199), which provides for furnishing the Belmont County Court with coal during the ensuing year, has been awarded to Fritz Relive, at \$8 per 100 bu. Address County Audr. Emerson Campbell, St. Clairsville, Ohio.

**1266—Wichita, Kan.**—This contract (p. 324), which provides for furnishing the local Board of Commissioners with coal, has been awarded to the **Good-Hilliard Coal & Feed Co.** There were no other bidders for the business. Address County Clk., Wichita, Kan.

**1268—Steele, N. D.**—This contract (p. 324), which provides for furnishing Kidder County with approximately 140 tons of coal, has been awarded to **J. W. Gonsullus & Co.**, at \$3.15 per ton. Address County Audr. J. C. McWhinney, Steele, N. D.

†**1269—Council Bluffs, Iowa**—This contract (p. 324), which provides for furnishing the local schools with 1¼-in. lump from Montgomery County, Ill., has been awarded to the **Western Fuel Co.**, at \$3.93 per ton. Other bids received on this business were: C. W. Bowyer Coal Co., \$3.98; Fenlon-Wickham Coal Co., \$4.07; Carbon Coal Co., \$4.17. Address Secy. J. J. Hughes, Independent School Dist., Council Bluffs, Iowa.

†**1271—Hastings, Neb.**—This contract (p. 324), which provides for furnishing the Adams County Board of Commissioners with coal for the Court House during the year beginning Sept. 1, has been awarded to **Chris Hansen**, at \$4.60 per ton for Weir City nut. J. H. Yosh Lumber Co. bid \$4.72 for Weir City nut unscreened, Allyn & Bissell bid \$4.64 for the same, \$4.44 for mill and \$4.27 for Rock Spring slack. Byers Lumber Co. bid \$4.68 for Weir City nut and \$4.30 for Rock Springs slack and the Hastings Fuel Co. bid \$4.65 per ton for Weir City nut. Address County Clk. C. H. Hudson, Hastings, Neb.

†**1279—Jamestown, N. D.**—This contract (p. 324), which provides for furnishing the county government with 150 tons of deep-mined lignite coal and 20 tons of anthracite stove coal, has been awarded to the **Welles Thompson Co.**, at \$8.25 for anthracite and to the **Washburn Lignite Coal Co.**, at \$3.25 per ton for the lignite. Address County Audr. Andrew Blewitt, Jamestown, N. D.

†**1286—Fargo, N. D.**—This contract (p. 324), which provides for furnishing the Cass County Board of Commissioners with coal has been awarded to the **Good-Hilliard Coal Co.** at \$4 per ton on shaft-mine bituminous lump and \$3 for slack. Address H. M. Barrett, Bd. of County Comrs., Fargo, N. D.

**No. 1287—Greensburg, Ind.**—This contract (p. 324), which provides for furnishing the county commissioners with 75 to 100 tons of Youghiogheny coal, has been awarded to the **Garland Milling Co.** at \$3.60 per ton. Address County Audr. L. W. Sans, Greensburg, Ind.

**1284—Council Bluffs, Ia.**—This contract (p. 324), which provides for furnishing the free public library of this city with coal during the ensuing season, has been awarded to the **Fenlon-Wickham Coal Co.** at \$4.13 per ton. Address Librarian, Free Public Library, Council Bluffs, Ia.

**+1288—Sioux City, Iowa**—This contract (p. 325), which provides for furnishing the Public Library at this place with anthracite coal, has been awarded to the **H. E. Haakinson Co.** at \$10.25 per ton. Other bids on this business were: **L. G. Everist Coal Co.**, \$10.45; **Brawn Coal Co.**, \$10.50; **Barish Bros.**, \$9.75, with \$1 extra for delivery. Address Libn. Jeannette M. Drake, Pub. Libry., Sioux City, Iowa.

**+No. 1290—Ellendale, N. D.**—This contract (p. 325), which provides for furnishing the Dickey County Board of Commissioners with approximately 200 tons of Youghiogheny mine-run coal, to be delivered at the court house, has been awarded to the **Ellendale Equity Co.** at \$6.25 per ton. The **Ellendale Grain & Produce Co.** bid \$6.30 per ton. Address County Audr. C. C. Misfeldt, Ellendale, N. D.

**+1292—Larimore, N. D.**—This contract (p. 325), which provides for furnishing the local board of education with approximately 100 tons of Youghiogheny coal has been awarded to **O. H. Phillips** at \$6.80 per ton. Address Clk. F. W. Reineohl, Bd. of Edu., Larimore, N. D.

**+No. 1296—Alliance, Neb.**—This contract (p. 325), which provides for furnishing the local school district with approximately 500 tons of lignite coal, has been awarded to **J. H. Vaughan & Son** at \$4.30 per ton for nut and egg and \$3.10 for nut and pea, both of the prices including cost of delivery. Address Secy. F. W. Harris, Alliance School Dist., Alliance, Neb.

**+1305—Hubbard, Ohio**—This contract (p. 366), which provides for furnishing the local Board of Education with 1½-in. screened coal during the ensuing year, has been awarded to **J. N. Brewer & Son.** Address Clk. Clyde Smith, Bd. of Edu., Hubbard Village School Dist., Hubbard, Ohio.

**+1309—Cedar Rapids, Iowa**—This contract (p. 366), which provides for furnishing the City Government with coal, has been awarded as follows: **W. G. Block Co.**, 300 tons Fulton County, Illinois, lump coal, \$3.36; **Russell Coal & Coke Co.**, 60 tons anthracite range coal, \$9.20. Address City Clk. L. J. Storey, Cedar Rapids, Iowa.

**+1310—Sidney, Ohio**—This contract (p. 366), which provides for furnishing the local Water Works Department with coal during the year beginning Sept. 1, has been awarded to the **Southern Coal & Coke Co.**, Chattanooga, Tenn., at 90c. per ton for mine-run coal. Address Dir. C. B. DeWeese, Dept. of Pub. Service, Sidney, Ohio.

**1312—Montevideo, Minn.**—This contract (p. 367), which provides for furnishing Chippewa County with coal, has been awarded to the **Montevideo Fuel & Ice Co.** for \$5.95 per ton for Youghiogheny lump coal. Address Audr. J. J. Stennes, Montevideo, Minn.

**+1315—Keytesville, Mo.**—This contract (p. 367), which provides for furnishing the County Court House with coal to be delivered before Nov. 1, has been awarded to **William Moore**, at 14½c. per bu. delivered. Address County Clk. W. W. White, Keytesville, Mo.

**+1317—Hutchinson, Minn.**—This contract (p. 367), which provides for furnishing the local Board of Education with 250 tons of Youghiogheny lump coal has been awarded to the **Interior Lumber Co.**, at \$5.13 per ton delivered. Address Secy. Henry Braun, Bd. of Edu., Dist. No. 2, Hutchinson, Minn.

**1319—Boise, Idaho**—That part of this contract (p. 367) providing for furnishing the Idaho Soldier's Home with coal has been awarded to the **Union Seed & Fuel Co.** at \$7.70 per ton for Utah screened lump and \$7.20 for Utah screened nut coal. The portion of the contract providing for the requirements of the penitentiary is still under advisement. Address Secy. George R. Barker, Capitol Bldg., Boise, Idaho.

**+1322—Brownstown, Ind.**—This contract (p. 367), which provides for furnishing the Board of County Commissioners with 300 tons of Youghiogheny coal, has been awarded to **C. F. Robertson**, at \$3.45 for coal over a 4-in. screen. Address County Aud. Albert Luedtke, Brownstown, Ind.

**+1325—Canton, Ohio**—This contract (p. 367), which provides for furnishing the Stark County Infirmary with approximately 1500 tons of coal, has been awarded to **A. F. Sonnhalter** on the following basis: Lump, \$1.50; three-quarter lump coal, \$1.40; mine-run, \$1.25; slack, 75c. Address Board of Stark County Commissioners, Canton, Ohio.

**+1326—Dalton, Ohio**—This contract (pp. 367, 446), which provides for furnishing the Sugarcreek Township Board of Education with coal during the period ending Jan. 1, 1916, has been awarded to **John Caldwell**, of Dalton, Ohio, at \$3.10,

and **E. P. Gerber**, Kedron, Ohio, at \$3.25. These are minimum prices, the exact figures ranging upward according to distance of haul. Address Clk. Clayton L. Arnould, Bd. of County Comrs., Dalton, Ohio.

**+1327—New York, N. Y.**—This contract (pp. 367, 446), which provides for furnishing the Panama R.R. Co. with its fuel requirements, estimated at from 500,000 to 600,000 tons of coal, has been awarded to the **Crozer-Pocahontas Co.** and **William C. Atwater & Co.**, at \$2.60 per ton for Pocahontas and New River Coal. The contract becomes effective Sept. 15. Address Asst. to Vice-Pres. R. E. Rutherford, Panama R.R. Co., 24 State St., New York City.

**+1331—Fairpoint, Ohio**—This contract (p. 367), has been awarded to **Geo. Barnes**, of St. Clairsville, Ohio, at 8c. per bu. for 800 bu. of lump coal; **A. B. Conron**, Flushing, Ohio, 225 bu. at 8c. per bu.; **M. C. Huntsman**, Maynard, Ohio, 200 bu. at 7½c. per bu. Address Clk. Addison Saffell, Bd. of Edu., Fairpoint, Ohio.

## Contract Notes

**Atlanta, Ga.**—The contract for furnishing the Atlanta Gas Co. with coal during the ensuing year has been awarded to the **Harlan Coal Co.**, of Louisville, Ky., after a series of tests of numerous different coals.

**New Orleans, La.**—The contract for furnishing the Central Ice and Cold Storage Co. and the Independent Ice Distilling Water Co., involving approximately 15,000 tons of coal, has been awarded to the **C. A. Andrews Coal Co.**

**Missouri, Kansas & Texas Ry.**—Press reports are to the effect that this road has awarded an exceptionally large contract with coal interests, who it is understood propose filling the contract on coal that will be stripped near Lehigh, Okla.

**Dassel, Minn.**—The contract for furnishing the local school with two carloads of Pocahontas egg coal has been awarded to the **Dassel Lumber Co.** at \$6.85 per ton. Any further coal required will be furnished at \$7.05 per ton. Address Clk. Olof Anderson, Bd. of Edu., Dassel, Minn.

**Fond du Lac, Wis.**—The contract for furnishing the local Water-Works with approximately 1,200 tons of coal has been awarded to the **Harcum Fuel Co.** at \$3.25 per ton. The **Wisconsin Coal and Dock Co.**, of Milwaukee, was awarded the contract for furnishing 800 tons of coal for the schools and library at \$3.64 per ton. All prices are f.o.b. Fond du Lac.

**Detroit, Mich.**—The contract for furnishing the Recreation Commission with approximately 300 tons of anthracite, stove, egg or smokeless has been awarded to the **Michigan Builders Supply Co.** at \$6.66 per ton for anthracite and \$4.14 for smokeless. Bids were received from five other companies. Address Supt. Ira W. Jayne, Detroit Recreation Com., Bd. of Parks and Boulevards, Detroit, Mich.

**New York**—The contract for furnishing the department of Docks and Ferries with approximately 15,000 gross tons of buckwheat and 6,000 tons of semibituminous (p. 492), has been awarded to **Chas. D. Norton & Co.**, at \$2.68½c. per ton on each grade. **Meeker & Co.** bid \$2.89 per ton, and **Pattison & Bowns** the same. Address Comr. R. A. C. Smith, Dept. of Docks and Ferries, Pier A, foot of Battery Pl., New York City.

**Auburn, Me.**—The city contract for the supply of coal for the municipal year ending Feb. 29, 1916, was divided between **Bearce & Edwards Co.** and **Pulsifer & Young Co.** About 700 tons of bituminous and 300 tons of hard coal are usually required. The contract was awarded at \$5.50 for soft and \$7.50 for hard coal, to be delivered as required. Bids were not publicly advertised for and Mayor Henry R. Porter was empowered to close the contract.

**Philadelphia, Penn.**—Due to trial shipments made some six weeks since a number of inquiries for American coal are being received from Denmark. The Danish government realizing that the British supply will be materially reduced made a test of American steam coal in the navy, and there is no doubt that the coal has met with complete satisfaction. At the present time it costs about \$14 a ton, f.o.b. Danish ports. If the Government is entirely successful a number of the important Danish coal brokers expect to place large orders here.

**Japan**—The Japan Chronicle of July 30 states that Japanese collieries have curtailed their output by over 20 per cent. this year as compared with last. In spite of this stocks are increasing. According to the latest investigations quoted by the Mainichi of Osaka, stocks of the collieries amount to 546,000 tons, and those on the Moji and Wakamatsu markets to 738,000 tons, totaling 1,284,000 tons. When small stocks in other parts of the country are taken into account, the grand total will exceed the unprecedented figure of 1,300,000 tons.